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An Examination of Open-Ended Mathematics Questions’ Affordances

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Abstract

This study explores the affordances that the open-ended questions hold in comparison with those of closed-ended questions through examining 6th grade students’ performance on a mathematics test. For this purpose, a questionnaire including 2 open-ended and 2 closed-ended questions was applied to 36 6th grade students. The questions were prepared in the light of four categories: (i) question with one correct outcome (closed-ended), (ii) question with multiple fixed outcomes (closed-ended), (iii) question with multiple variable outcomes (open-ended), and (iv) question with limitless outcomes (open-ended). The collected data were analysed in terms of correct, incorrect, uncategorized and unanswered categories as well as with regard to the diversity of the responses. The findings reveal that students showed lower performances for the question that requires limitless outcomes, there was a lack of generalizations or general rules in their responses and they provided more diverse responses for the open-ended questions. The findings were discussed with regard to higher-order thinking skills such as creativity and divergent thinking as they are often associated with open-ended questions and their affordances. Finally some implications are put forward and further research areas are highlighted.

Keywords: Open-Ended Question, Question With Multiple Correct Outcomes, Creativity, Divergent and Convergent Thinking, Mathematic Teaching

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INTRODUCTION

Dissatisfaction with multiple choice and closed-ended questions has led educators to develop measurement and evaluation tools that can provide more insights about students' understanding, knowledge development, and thinking (Silver, 1992). This dissatisfaction has also been a driving force for the development of open-ended tasks, questions and problems that can be used in a classroom for conducting a process-oriented teaching rather than an outcome-oriented one (Pehkonen, 1997; Becker & Shimada, 1997; Nohda, 2000). Alternative measurement and evaluation approaches that arise in all fields of education, including mathematics education, are the product of endeavors in this direction. International exams such as PISA and TIMSS, in which mathematical literacy is tested, have also been influenced by these endeavors and have included alternative question types for assessment (OECD, 2017; Mullis, Martin, Ruddock, O'Sullivan, & Preuschoff, 2009). One of the prominent question types that came to the foreground in this quest has been the open-ended question or task.

In Turkey, where this study is carried out, open-ended questions or questions with multiple correct answers have been gaining more attention especially due to exams at the national level (MoNE, 2017). Although open-ended questions are often on the agenda, it appears that the term open-ended question is not clearly defined and especially the affordances that they hold are not sufficiently explored. In this study, the affordances of mathematical open-ended questions are explored through the 6th grade students’ performances on open-ended questions. In this regard, in order to examine the affordances of the open-ended questions more closely, firstly the open-ended question and its definition will be presented. Later, a literature review of the studies on open-ended questions will be provided. Next, the conceptual framework that also guides the preparation of the questionnaire’s items will be introduced. Method, findings, discussion, and conclusion and implications sections will follow this section respectively.

What is an open-ended question?

The terms such as open-ended problem, open-ended task and open-ended question are mainly employed to refer to the openness of an item. The term ‘open’ in the open-ended question (we use the term question to include problem and task as well) refers to diversity. The openness allows for different definitions of the term open-ended by nature. The related literature shows that different definitions about open-ended question are the case. For instance, Pehkonen (1997, p.8) employs ‘open-ended problem’ as an umbrella to include “investigations, problem posing, real-life situations, projects, problem fields (or problem sequences), problems without question, and problem variations ("what-if"-method)”. Silver (1995) states that the term open problem contains different meanings and provides a list of four different descriptions for it:

- Unsolved mathematics problem for some time (e.g., Fermat’s Last Theorem was unsolved until 1993)
- Problem that enables different interpretations or different acceptable answers
- Problem that enables different methods of solution
- Productive problems which allow new or following problems to be posed

As Silver (1995) also stated, while the first definition is related to unsolved problems in the history of mathematics, the other three are concerned with the mathematics learning and teaching. The second description refers to multi-answers while the third one points to multi-methods in a problem. Productive problems are considered to be open when they “naturally suggested a chain of related problems” (ibid., p.68) and they are hence prolific.
Open-ended questions are defined in connection with well-structured and ill-structured problem types as well (Leung, 1997). Problems in which the given, the outcome and operations are well-defined are called well-structured problems (Reitman, 1965, cited in Leung, 1997). While the problems in which the given and the outcome are both well-defined are considered as well-structured (closed-ended), the problems in which either or both of these are not well-defined are considered as ill-structured (Reitman, 1965).

Sullivan, Warren & White (2000) employ the term open-ended to define tasks that have open goals. They stated that the tasks where the solution method is not immediately available to the student are considered to be a problem, but they prefer to use the term task as the tasks in their studies do not always have this feature. Defining the terms of open-ended and closed-ended, Sullivan et al. (2000) stated that the term closed-ended refers only to the existence of an acceptable path, response, approach or justification system, while the term open-ended refers to situations in which more than one of these exists.

Tsamir, Tirosh, Tabach, & Levenson (2010) attended to open-ended questions and related concepts through the terms of ‘solution’, ‘methods’ and ‘outcome’. They stated that the term solution can be used in three different ways: i.) The process followed in a problem solution, ii.) The answer (outcome) given for a problem or iii.) Both (both process and final answer). They stated that they use the term methods for solution processes, the result (outcome) for the final answer to the problem and the solution for both method and result (outcome). Tsamir et al. (2010) used the terms of “multiple outcomes” and “multiple solution methods” while referring to the openness of the tasks and diversity of solution methods.

As can be seen from the literature review presented until now, different definitions have been presented for open-ended questions, problems and tasks. In this study, open-ended and closed-ended constructs are considered in terms of final outcomes (correct answers) of the questions, as in Tsamir et al. (2010). If a question has only one correct answer or the number of answers is fixed and determined, this question is considered as a closed-ended, and if it has more than one correct answer and the answer shows variability, it is considered as an open-ended question. If a question has a single correct answer, but asks for different solution methods as an outcome, this question is also considered as an open-ended one.

**Literature review**

In this study, the concept of open-ended question is considered to include open-ended problems and open-ended activities as well. While presenting the relevant literature, therefore, studies on open-ended problems and open-ended activities will also be examined.

Our own review of the literature shows that studies on open-ended questions, problems and tasks can be examined in six distinct themes. These themes are; (i) performance and opinions of students on open-ended questions (Cai, 2000; Sullivan, Warren, White, & Suwarsono, 1998), (ii) the use of open-ended questions as a teaching approach (Nohda, 2000; Becker & Shimada, 1997), (iii) the types and frequencies of open-ended questions in the textbooks (Bingolbali, 2020; Zhu & Fan, 2006), (iv) the use of open-ended questions in the professional development of pre-service and in-service teachers (Zaslavsky, 1995; Bragg & Nicol, 2008), (v) characteristics of open-ended tasks and problems, and their relationship with creativity, divergent-convergent thinking skills (Bennevall, 2016; Kwon, Park, & Park, 2006) and finally (vi) the use of open-ended questions in assessment and evaluation (Silver, 1992; MoNE, 2017; OECD, 2017). The related literature is presented in relation with these themes respectively.

With regard to the first theme, students’ ways of responding to open-ended mathematics questions is one of the issues that has received attention. For example, Sullivan & Clarke (1992, p.44) conducted a study with participants at different levels using open-ended questions which they called
'good questions' (e.g., “If the circumference of a rectangle is 30 m, what's its area?”). The researchers examined how participants responded to such questions, whether the responses depended on working individually or in groups, whether age or school experience had an impact on the given responses, whether the question format and an intervening teaching increased the number of students who provided multiple correct and general rule-based responses. They also examined how participants think and justify their answers and they did this examination in several following-up stages. In the first stage, the findings showed that only a few students gave multiple correct answers to the questions, their responses were limited to one answer, and working individually or as a group did not have an effect on the number of given correct answers. The second stage findings indicate that the number of 10th grade students who provided only one correct answer to the questions was high and 10th grade students gave more of multiple correct and general rule-based answers than the students at the 6th grade level. The findings also reveal that the numbers of primary school teacher who provided only one correct answer was higher than those of 10th grade students, yet 10th grade students provided more of general rule-based responses than primary school teacher candidates did. The third stage findings revealed that an intervening teaching did not increase the number of students' correct answers, but an explicit request of multiple answers led to more correct responses. Finally, the fourth stage findings showed that when compared to written tests, more multiple correct and general rule-based answers were obtained in the interviews and the interviews hence gave more insight about the students' approach to open-ended questions.

As a follow-up study, Clarke, Sullivan, & Spandel (1992) examined whether students’ failure to provide multiple correct and general rule-based answers to open-ended mathematics questions is the case for other subjects as well. To this end, they asked open-ended questions to the 7th and 10th grade students for the subjects of Social Science, English, Science and Mathematics. The findings were examined in terms of parameters such as student grade level, gender, the nature of the problem, if the clues pointing to the openeness in the questions were explicit and if these variables were related to the subjects. The findings show that the tendency to provide a single correct answer to the questions is common to all subjects and hence is not only limited to mathematics. It is also found that when multiple correct answers are explicitly requested, students provide more correct answers in all the subjects. The findings further show that in all the courses except English, more correct answers increase with the years spent at school and female students provide more correct answers.

In another study, Sullivan, Warren, & White (2000, p.8) explored 8th grade student performances through questions selected from different learning areas in terms of four types of questions: (i) closed no-context (“A rectangle has an area of 2 m². It is 40 cm wide. How long is it?”), (ii) closed contextual (iii) open-ended no-context and (iv) open-ended contextual (“A rectangular rug has an area of 3 m². What might be the length and width of the rug?”). The findings showed that “in one case, the open-ended tasks were easier; in another, there was little difference; and in the third case, the open-ended tasks were more difficult” (p.15). While presenting questions in specific contexts was sometimes helpful for students’ high performance, in other cases it was not. It was also stated that both context and open-endedness affected the answers to the questions.

Cai (1995) posed an open-ended question with more than one correct answer to 250 American and 425 Chinese sixth grade students. Although the question was presented in a different form, it can be rephrased as follow: ‘Some blocks are grouped as two, three and four and each time one block left over. How many blocks are there?’ It was found that 54% of Chinese students and 56% of American students gave correct answers to this question, in which correct answers can be derived from the algebraic expression of 1 + 12n (n = 0,1,2,…). This question has answers such as 13, 25, 49 etc., and it was found that the students mostly provided 13 as an answer and the number of Chinese students who provided different responses other than 13 was higher. It was also observed that the proportion of American students who gave more than one correct answer was only 1% (2) and that of Chinese students was 3% (7).
The second theme is concerned with the teaching approaches such as the open approach method (Nohda, 2000) or open-ended approach (Becker & Shimada, 1997). The open-ended teaching approach in which open-ended problems played a central role emerged in Japan in the 1970s (Nohda, 2000; Becker & Shimada, 1997; Inprasitha, 2006). In the open approach method, since the problems are both solved by different methods and they have multiple correct answers, it is also called an open-ended approach (Lin, Becker, Ko, & Byun, 2013). The studies show that when this approach is used as a teaching method, it leads to the development of both conceptual and procedural understanding in prospective teachers (Lin et al., 2013), and also contributes to the development of communication, connectivity, mathematical thinking and conceptual understanding (Munroe, 2015). In the study of Boaler (1998) with students from two different schools, one of which is based on traditional approach and the other is based on open-ended teaching environment; it was revealed that students' mathematical understandings developed procedurally in the school where traditional education was carried out, but conceptually in the school where open-ended activities were implemented. Al-Abssi's study (2013) likewise showed that the use of open-ended activities had a positive effect on the development of students’ achievements while the study of Viseu & Oliveira (2017) showed that with the use of open-ended activities in the classroom, mathematical communication shifted from teacher-centered to student-centered one.

From the point of the view of textbook research, some studies have been conducted to examine whether the questions, problems or tasks in the textbooks of different countries or the same country are open-ended or not (e.g., Bingölbalı & Bingölbalı, 2020). Analysis of some of the textbooks from different countries show that an average of over 90% questions in the mathematics textbooks are closed-ended and very few open-ended math questions are provided (Zhu and Fan, 2006; Han, Rosli, Capraro, & Capraro, 2011; Yang, Tseng, & Wang, 2017). For example, Glasnovic Gracin (2018), who analysed 6th, 7th and 8th grade mathematics textbooks in Croatia, found that more than 97% of the tasks in the textbooks were closed-ended. Similar findings were obtained by Bingölbalı (2020) and it was found that only 8% of the questions in the three textbooks (6th, 7th and 8th grades) at the elementary school level had multiple correct answers.

The issue of the higher-order thinking skills such as creativity and divergent-convergent thinking is another theme through which open-ended questions have received attention (Bennevall, 2016; Klavir & Hershkovitz, 2008; Mann, 2006; Kwon et al., 2006). For example, Bennevall (2016) has examined the relevant literature to identify the examples of tasks that have fostered creativity skills in mathematics teaching, identified different types of open-ended tasks and discussed how these tasks are useful for the development of creativity skills. Kwon et al. (2006) prepared and implemented a program based on an open-ended teaching approach using open-ended problems to improve divergent thinking in the elementary school students. The findings reveal that the experimental group students performed better in each of the components of fluency, flexibility and originality, which are components of divergent thinking, compared to the control group.

Another area in which the open-ended questions, tasks and problems received interest is concerned with the professional development and understanding of in-service and prospective teachers. For example, Pehkonen (1999) revealed that the majority of teachers could not make a satisfactory description of what open-ended tasks are. In a professional development research in which closed-ended questions were turned into open-ended questions, Zaslavsky (1995) found that the use of open-ended questions provides awareness to teachers in terms of student differences, errors as being a part of the teaching process and importance of collaboration and active participation in producing solutions. Bragg & Nicol (2008) examined prospective teachers’ experience of developing open-ended problem and problem posing, and showed that this experience enabled the candidates to examine their single correct answer-based mathematics perspective and their pedagogical approaches, and provided awareness about good learning practice such as problem posing.

Finally, the use of open-ended questions has drawn attention in terms of the theme of measurement and evaluation as well (Silver, 1992; Silver & Lane, 1993; Morgan, 2003; Mullis et al.,
2009; OECD, 2017; MoNE, 2017; TIMSS, 2015). For example, in the published math test of the TIMSS exam for 4th and 8th grade students, the following question was posed to 4th grade students “Cihat is rounding the numbers to the nearest 100. Write a number that is less than 200 and that Cihat can round to 200.” (TIMSS, 2015). With this open-ended question, students are given the freedom to choose any number between 150-200. In research studies and exams, more complex open-ended questions are addressed to the participants in order to obtain more in-depth insight from students about many mathematical skills such as problem solving, reasoning, connectivity and communication (Silver & Lane, 1993; Morgan, 2003). All these reveal how functional open-ended questions, problems and tasks are for the whole teaching process.

Conceptual framework

Both the definition of the open-ended question presented above and the literature review section suggest that there is an ambiguity with regard to conceptualization of open-ended question. There is hence a need for a conceptual framework in order to conceptualize what an open-ended question can stand for. With a few exceptions (Reitman, 1965, cited in Leung, 1997), the related literature reveals that there is no systematic approach in this regard. In fact, as the literature review section shows, many different meanings have been attached to open-ended questions (Silver, 1995). In this part of the study, the conceptual framework developed by Bingolbali (2020) will be presented for the conceptualization of the open-ended question. This conceptual framework has been used in the analysis of textbooks and in this study; it is used to develop the data collection tool as well.

In the conceptual framework, the number of correct answers for the questions is an important indicator for conceptualizing them. The conceptual framework consists of two main categories: (1) Questions with one correct answer, (2) Questions multiple correct answers. The question of ‘A rectangle is 3cm wide and 8 cm long. What is its area?’ has a single correct answer, while the question of ‘What can be the lengths of a rectangle that has an area of 24 cm$^2$?’ has multiple correct answers. The questions with multiple correct answers are divided into two sub-categories: (2.1) questions with finite correct answers and (2.2) questions with infinite (limitless) correct answers. When the question ‘What can be the lengths of a rectangle that has an area of 24 cm$^2$’ is examined in the set of natural numbers, this question has the finite correct answer, yet when it is examined in the set of rational or real numbers, it has limitless correct answers. In addition, the questions with (2.1) finite correct answers are divided into two parts: (2.1.1) questions with multiple fixed outcomes and (2.1.2) questions with multiple variable outcomes. The answers for the question of ‘Find positive integers which can be divided by 3 and smaller than 20’ are finite, determined and fixed. However, if the question is posed as ‘Provide a positive integer less than 20 that can be divided into 3 without a remainder?’, the answers will vary and the question is considered as having multiple variable correct outcomes.

As can be seen from the outcomes of the presented questions, the conceptual framework is based on the number of answers that can be given to a question. Since this study focuses on open-ended questions, questions with one correct answer or multiple yet determined answers are considered as closed-ended, whereas questions that allow the answers to be multiple and variable are considered as an open-ended one. In this regard, the questions with one correct answer given in the category (1) and multiple fixed answers in the category (2.1.1) are considered as closed-ended, while the questions in the categories of (2.1.2) and (2.2) are considered as open-ended.

METHODOLOGY

This study adopts qualitative research approach (Strauss & Corbin 1998) and it is designed as a case study to examine the affordances of mathematical open-ended questions through the responses given by 6th grade middle school students to open-ended and closed-ended mathematics questions. The case study is limited to a group of 6 grade students and their answers to open-ended and closed-
ended questions. In what follows, we present how we carry out this study by providing the details about participants, data collection tool and data analysis respectively.

**Participants**

As the data collection tool consists of questions related to the learning outcome of ‘interprets and calculates the arithmetic average of a data group’ in the sixth grade mathematics teaching curriculum, the study was carried out specifically with 6th grade students. A purposive sample was hence chosen and a total of 36 6th grade students from two different classes in an elementary school located in the central region of Turkey took part in the study. The mathematics achievement level of the participants was evaluated as above-average and good by their teachers.

**Data Collection Tool**

A questionnaire consisting of four questions was employed as a data collection tool. One of the questions was designed with a single correct answer and the other three with multiple correct answers. The questions were developed in line with the learning outcome of ‘interprets and calculates the arithmetic mean of a data group’ as a part of data processing learning area in the 6th grade curriculum. All questions were context-based. As shown in Table 1, the first question is closed-ended. The second one has multiple correct answers and the number of answers to this question is finite and fixed. The second question is also closed-ended. The third question has also multiple correct answers, however since the answers will vary, this question is considered as having multiple variable correct answers. The fourth one has infinitely (limitless) accurate answers.

In parallel with the conceptual framework, since the number of correct answers to the first question is one and to the second question is determined and fixed, they are regarded as closed-ended. Since the third and fourth questions have multiple and variable correct answers, they were considered as open-ended ones.

**Data Collection and Analysis**

The questionnaire was administered to students after the topic of average mean was covered at the school. The administration took about 15 minutes. The participants were volunteers and they were ensured that their responses were not going to be graded.

Qualitative content analysis was employed in the analysis of students’ answers to the questions. All the obtained data were put together and subjected to preliminary examination first. As a result of the iterative examination, codes and categories were determined for the analysis and this process enabled us to figure out how to analyze the data. After this process, it was decided to analyze the obtained data in two stages. In the first stage, the answers were analyzed using four categories: i.) Correct, ii.) Incorrect, iii.) Uncategorized, iv.) Unanswered. Only these categories were used for the first question. In the second stage, the answers given for the other three questions and their distinct features were taken into consideration and hence analyzed separately. In the third and fourth questions,
each response given by the participants was evaluated as a category and analyses hence were carried out on individual responses. In the second question, since the responses to be given are fixed, the analysis was carried out over the number of correct answers.

After the preliminary examination of the data and determination of the categories, the data was analyzed by both researchers. Since the questionnaire items allowed the responses to be classified quantitatively, there was a close agreement of 98% between the two researchers regarding the classification of students' responses. A common decision was reached for all responses when there was a disagreement.

**FINDINGS**

The findings will be presented in four parts, respectively, for each question.

**Findings Related to the First Question**

The first question posed to the students is closed-ended and has only one correct answer. The results show that 78% of students answered this question correctly. When the incorrect answers and uncategorized answers are evaluated together, it seems that 22% of the students did not answer this question correctly.

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<td>Correct</td>
<td>28 (78%)</td>
</tr>
<tr>
<td>Incorrect</td>
<td>6 (16.5%)</td>
</tr>
<tr>
<td>Uncategorised</td>
<td>2 (5.5%)</td>
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<tr>
<td>Unanswered</td>
<td>-</td>
</tr>
</tbody>
</table>

With regard to the incorrect responses, the findings show that the incorrect responses such as 8, 10, 14, 26 were given by the students as an answer for the first question.

**Findings Related to the Second Question**

The second question has multiple correct answers, yet all possible correct answers are fixed and their numbers are finite. All 7 correct answers in the category A in Table 3 are the answers that can be given for this question. However, as some students use zero in their answers, the answers in the category B were also accepted as the correct answer. The second question was hence evaluated over 12 answers in total. Other possible situations arising from the change of the numbers in each answer were not taken into account in the analysis.

<table>
<thead>
<tr>
<th>Category-A Responses</th>
<th>Category-B Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>7, 1, 1</td>
<td>9, 0, 0</td>
</tr>
<tr>
<td>6, 2, 1</td>
<td>8, 1, 0</td>
</tr>
<tr>
<td>5, 3, 1</td>
<td>7, 2, 0</td>
</tr>
<tr>
<td>4, 4, 1</td>
<td>6, 3, 0</td>
</tr>
<tr>
<td>5, 2, 2</td>
<td>5, 4, 0</td>
</tr>
<tr>
<td>4, 3, 2</td>
<td></td>
</tr>
<tr>
<td>3, 3, 3</td>
<td></td>
</tr>
</tbody>
</table>

The student answers were analyzed using the number of correct answers based on Table 3. The numbers given with the letters A and B in Table 4 indicate how many correct answers were given together from the relevant category. For example, A7 shows that 7 correct answers from the category-A are given together, and B2 indicates that only two correct answers from the category-B are given.
together. Table 4 shows that 5 students gave all 7 correct answers in the category-A, which corresponds to 14% of all students. The number of students who gave any of two correct answers in the category-A as the correct answer is 9 (e.g., (3,2,4) (5,3,1)); the number of students who provided only one correct answer is 6 (e.g., (3,3,3)). Compared to the category-A, the number of students responding from the category-B was very low. The maximum number of correct answers given in the category-B at one time is 2, and the number of students responding in this way is only 2. Five students each gave only one correct answer from the category-B.

Table 4 Findings for Question-2

<table>
<thead>
<tr>
<th>No</th>
<th>Responses from category-A</th>
<th>(n=36)</th>
<th>Responses from category-B</th>
<th>(n=36)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A7</td>
<td>5</td>
<td>B1</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>A6</td>
<td>1</td>
<td>B2</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>A4</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>A3</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>A2</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>A1</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>General Rule</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Incorrect</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Uncategorized</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Unanswered</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* The answers of each student are classified under one category. However, there were cases when a student response (A2 + B1) was addressed under two categories (A2 and B1).

The second question findings also show that 14% of the students (5) provide incorrect answer (e.g., stating that siblings may be 1 year old). In addition, 9 student responses were not categorized. The answers in this category contained both correct and incorrect answers, or contained unclear statements such as "it may be 1, 2, 3, ..., 9 for all, or the age of all may be the same". Only 1 student left this question unanswered, so students’ overall effort to solve the question was quite high. The number of students answering this question with a general rule is only two. For example, one of the students gave the following response containing a general rule: “All of them can be 3 years old. The ages of two may be the same. They may all have different ages”. Although not presented in the Table 4, it should be stated that four students in total gave answers from both the category A & B together.

**Findings Related to the Third Question**

The third question posed to the students enables multiple variable correct answers to be provided as responses. Findings show that 78% of the students correctly answered this question which allows variable answers to be presented. Although only one example was requested from the students, one student gave two correct answers and three students gave three correct answers. Twenty-four students gave a single correct answer as requested.

Table 5 Findings for Question-3

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency/percentage (n=36/%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correct</td>
<td>28 (78%)</td>
</tr>
<tr>
<td>Incorrect</td>
<td>4 (11%)</td>
</tr>
<tr>
<td>Uncategorised</td>
<td>3 (8%)</td>
</tr>
<tr>
<td>Unanswered</td>
<td>1 (3%)</td>
</tr>
</tbody>
</table>

Since the third question enables multiple variable correct answers, the variety of answers given to the question has also been analyzed. As can be seen in Table 6 below, students gave 16 different answers to this question. Among the answers, (15, 15, 15) was the most common one. Only one student responded at the general rule level, and this student stated that every triple number would be the answer, with a total age of 45.
Table 6 Further Analysis of Question-3 Findings

<table>
<thead>
<tr>
<th>No</th>
<th>Responses</th>
<th>Frequency</th>
<th>No</th>
<th>Responses</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>15, 15, 15</td>
<td>10</td>
<td>9</td>
<td>20, 16, 9</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>15, 10, 20</td>
<td>5</td>
<td>10</td>
<td>17, 23, 5</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>20, 5, 20</td>
<td>3</td>
<td>11</td>
<td>11, 8, 26</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>14, 15, 16</td>
<td>3</td>
<td>12</td>
<td>10, 5, 30</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>5, 15, 25</td>
<td>2</td>
<td>13</td>
<td>35, 5, 5</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>29, 3, 13</td>
<td>1</td>
<td>14</td>
<td>1, 15, 29</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>0, 26, 19</td>
<td>1</td>
<td>15</td>
<td>3, 2, 40</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>13, 15, 17</td>
<td>1</td>
<td>16</td>
<td>General rule: Any numbers with a total of 45-age.</td>
<td>1</td>
</tr>
</tbody>
</table>

The findings of question-3 also point to the fact that the question holds the opportunities of multiple variable correct answers which we consider an important feature of the open-ended question.

Findings Related to the Fourth Question

The fourth question addressed to the students enables infinitely correct responses to be provided as answers. Findings show that the least correct answer was given for this question in the whole test. While 56% of the students answered the question correctly, 22% left this question unanswered. 44% of the students failed to answer this question correctly. The answers of the four students were not categorized as they provide such vague responses as ‘the sum of two positive same number = even number’. When the answers of the students who gave the correct answers were subjected to further analysis, it was seen that 9 of these students gave one correct answer, 3 gave two correct answers, 2 gave three correct answers and 5 gave more than three correct answers. The number of students who provided a general rule as an answer is only 1, which corresponds to 3% in total. In this regard, this student provides "(1,2,3); (3,4,5); (5,6,7) etc. They all go up by two" as a rule.

Table 7 Findings for Question-4

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency (n=36/%)</th>
<th>Category</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correct</td>
<td>20 (56%)</td>
<td>One correct response</td>
<td>9</td>
</tr>
<tr>
<td>Incorrect</td>
<td>4 (11%)</td>
<td>Two correct responses</td>
<td>3</td>
</tr>
<tr>
<td>Uncategorised</td>
<td>4 (11%)</td>
<td>Three correct responses</td>
<td>2</td>
</tr>
<tr>
<td>Unanswered</td>
<td>8 (22%)</td>
<td>More than three correct responses</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>General Rule</td>
<td>1</td>
</tr>
</tbody>
</table>

Note: The numbers in the right column of the table were obtained from the analysis of 20 correct answers in the left column. In addition, the examples given to illustrate the general rule have not been evaluated additionally under other categories.

All correct and incorrect answers to the fourth question are given together in Table 8 below. Table 8 shows that different answers were given to this question in 45 categories. The findings reveal that the answers are generally different from each other (only one answer in 36 categories) and the number of the same answers given by different students is at most 4.
There were no students who stated that the answer to the fourth question was directly infinite. However, as stated above, the rate of the students who answered this question at the general rule level was 3%. It should be stated that the student answer in some categories (e.g., 22, 35, 43) does not satisfy the conditions of the problem.

**DISCUSSION**

Four questions were posed to sixth grade students about the arithmetic average calculation and interpretation in order to examine the affordances of the open-ended questions through their performances. The findings revealed that the success rate of students was 78% for the one-answered closed-ended question. In the second closed-ended question which required multiple determined answers, there were a small number of students (14%) presenting all of the specific answers. In the third open-ended question, the correct answer rate for this question was 78%. In the last open-ended question with infinitely correct answers, the correct answer rate was 56%. When the questions are examined in terms of the number of correct answers; the first question enables a fixed single correct answer, the second one has 12 specific answers, the third one enables multiple variable answers, and the last one allows infinite correct answers. In the first question, one correct answer was given; and in the second question, a maximum of 7 correct answers were given. Although the only one correct answer is given in the third question, the answers in 16 different categories mean that the answer variety is high for it. In the last question, the answers were classified in 31 different correct categories. The third and fourth questions enable the affordances of variable responses to be provided.

These findings reveal some similarities and differences compared to the related studies in the literature. The study of Sullivan & Clarke (1992) showed that when the open-ended questions are compared with the closed-ended ones, they are both easy, difficult and have no difference in difficulty. In this study, similar to the study of Sullivan & Clarke (1992), the students provided an equal percentage of correct answers for the closed-ended first question and the open-ended third question. However, in the last question that required limitless answers, the number of the correct answers that the students provided was lower. On the other hand, when compared to the work of Cai (1995), the

<table>
<thead>
<tr>
<th>Table 8 Further Analysis of Question-4 Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No</strong></td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
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<td>20</td>
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<tr>
<td>41</td>
</tr>
<tr>
<td>42</td>
</tr>
<tr>
<td>44</td>
</tr>
</tbody>
</table>
findings show that many more students presented different correct answers for the open-ended questions. It should be noted that this difference might be due to the cognitive demands and difficulty levels of the questions used in the studies.

The affordance that the open-ended questions provides in terms of different answers is a valued aspect emphasized in the related literature. It is especially stated that the open-ended questions with multiple correct answers are functional for the development of creativity and divergent thinking skills (Bennevall, 2016; Klavir & Hershkovitz, 2008; Mann, 2006; Kwon et al., 2006; Imai, 2000). The open-ended questions enabling multiple correct answers are related to divergent thinking, and closed-ended questions are associated with convergent thinking (Foster, 2015). The research has shown that the open-ended problems that require multiple correct answers and different solution strategies are effective in developing divergent thinking (Kwon et al., 2006). It can be stated that the multi-answer questions presented in this study, especially the third and fourth questions, provide students with opportunities in terms of both correct answers and different solution strategies and thus have the potential to lead divergent thinking. The emergence of the answers in 31 different correct categories for the fourth question and 16 different categories for the third question means that the open-ended questions with variable answers contain opportunities for divergent thinking.

For divergent thinking skills, which are sometimes considered to have components such as fluency, flexibility, and originality (Kwon et al., 2006), different correct responses are associated with the fluency component, and answers from different sets of responses are associated with flexibility and novel responses with the originality component (Evans, 1964: cited in Imai, 2000). The open-ended questions in our study provide students with opportunities for the fluency component, and the diversity of responses reveals that students benefit from this opportunity. As stated above, the variety of responses given especially for the third and fourth questions reveal that the posed questions contain opportunities for the fluency component. The data obtained from the fourth question that enables infinite correct responses show that the number of students who gave two or more correct answers was 10, and 5 of them gave more than three correct answers (Table 7). Given that the number of students in the study is 36, these findings reveal that students do not perform well in terms of the fluency component. Considering that the responses of the students are generally similar and their responses rarely include a general rule, it can be stated that students’ responses are insufficient in terms of the flexibility and originality requirements as well.

The use of open-ended problems is associated with the open approach or open-ended teaching approach, as mentioned in the literature review (Nohda, 2000; Becker & Shimada, 1997). In this study, although questions are used instead of problems, it can be said that open-ended questions meet principles such as (i) Open (multi-solution) process, (ii) Open outcome (multiple correct answers), and (iii) enabling new questions to be generated (Nohda, 2000). For example, the third and fourth questions theoretically meet all three principles expressed by Nohda (2000) because of the outcomes they demand. The use of these questions in real classroom settings or interviews will surely provide better insights about their potentials with regard to afore-mentioned principals of the open-ended teaching.

The variety of the responses provided by the questions with multiple correct answers holds both advantage and disadvantage for the teaching. As can be seen in the fourth question, the emergence and evaluation of the answers in 31 correct distinct categories can be a workload for the teacher, but can also turn into an opportunity. When this opportunity is considered in terms of socio-mathematical norms, it is apparent that a request from students to provide solutions with different methods and different answers for a posed question can enrich the classroom culture (Yackel & Cobb, 1996; Uçar, 2016). Open-ended questions can thus be functional in terms of both creating and establishing socio-mathematical norms such as different and effective mathematical solution methods in the classroom. The findings indicate that the questions employed in the study can provide the opportunities for forming the stated norms in the classroom. Especially the promotion of responses
that require stating a general rule and the demand for different and effective solutions may provide an opportunity for the formation of socio-mathematical norms.

Open-ended questions, like the ones employed in this study, are also used for the measurement and evaluation purposes in international exams (Silver, 1992; OECD, 2017; MoNE, 2017; TIMSS, 2015). For example, the third question used in our study is similar to TIMSS-2015 question that we have provided earlier. The use of the question styles employed in this study for the measurement and evaluation purpose is hence valuable not only for formative and diagnostic assessment but also for summative assessment that often international tests such as TIMSS requires.

CONCLUSIONS AND IMPLICATIONS

In this study, the affordances of the open-ended questions were examined through students' performances on the closed-ended and open-ended questions. With regard to each question type and its feature, the findings show that open-ended questions give students the opportunity to provide different answers and this increases the diversity of students' answers. The closed-ended question that required only routine procedures revealed that some students had difficulties with it as well. The findings also revealed that students were less successful in an open-ended question that required infinite correct responses and were unable to produce general rule-based responses. The findings of the second question, which required certain multiple correct responses, also showed that the students who presented all the answers correctly were limited. The results overall reveal that the open-ended questions give students the opportunity to provide different answers by their nature, but the answers of the students are insufficient in terms of quality (e.g. generating general rules).

In addition to these results, this study is considered to have provided important ideas for further research and applications. For example, considering the student's perspective, further research on different topics with different groups of students is expected to produce more instructive and explanatory results regarding the possibilities and limitations of open-ended questions. In terms of teaching, how an instruction based on the use of open-ended questions affects student achievement, thinking style, belief and attitude is considered as an issue that should be addressed in further research. Since open-ended questions with multiple correct answers allow students to construct their own answers and solutions, it is then important to examine how a teaching based on such questions can contribute to the development of their individual autonomy (Yackel & Cobb, 1996).

The quality of teaching is closely related to the competence, belief and attitude that teachers have. It is hence necessary to conduct detailed examinations on the beliefs, skills, knowledge of teachers about open-ended questions and whether they use them in the classroom or not (Kasar, 2013). The effective conduction of teaching is also closely related to the quality of the materials offered to teachers and students, and therefore further research is needed to examine not only how well teaching materials provide opportunity for open-ended questions but also how such materials can be developed.

Finally, from the point of the measurement and evaluation, there is an increasing interest in recent years in the use of open-ended questions in various forms. It is clear, however, that a comprehensive conceptual framework that guides the preparation of open-ended questions is missing. The conceptual framework of this study, which deals with open-ended and closed-ended questions based on the number of correct answers, needs to be explored through further research in order to examine whether it can guide question preparation for the measurement and evaluation purpose.

REFERENCES


Predictive Relationships Between Incivility Behaviors Faced by Guidance Counselors and Subjective Well-Being and Life-Domain Satisfaction

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Necmettin Erbakan University

Abstract

In this study, it was aimed to determine the predictive relationships between the incivility behaviors faced by guidance counselors and subjective well-being (SWB) and life-domain satisfaction. The design of the study was based on the relational survey model. The study group was selected using the disproportionate appropriate sampling method. A total of 350 (198 females and 152 males) guidance counselors, who were in charge in schools and the Guidance and Research Center, were recruited for this study. The "School Incivility Scale-SIS" developed by Yildirim, Unal and Surucu (2013) to measure the rude behaviors faced by guidance counselors, and the "Subjective Well-Being Scale" developed by Tuzgöl Dost (2005a) to determine the subjective well-being level, and "Personal Wellbeing Index-A" adapted into Turkish by Şimşek (2011) to determine satisfaction in life-domains were used to collect data. The results revealed that the most significant variable affecting the SWBs of guidance counselors was incivility, and there was a negative linear relationship between SWB and incivility. It was determined that the most important variable affecting life-domain satisfaction was SWB, and there was a positive linear relationship between life-domain satisfaction and SWB. It was determined that the second most important variable affecting life-domain satisfaction is incivility, and there is a negative linear relationship between life-domain satisfaction and incivility.

Keywords: Guidance Counselor, Incivility, Subjective Well-Being, Life-Domain Satisfaction

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INTRODUCTION

Civility is defined as treating others with respect and grace, grace and kindness (Turkish Language Association, 2011). Civility is a sign of respect for others, and Carter (1998) suggests that it is essential for living a life in common with others. Civility is a necessity of being human and good human relations in social life.

Andersson and Pearson (1999) suggest that civility must increase in the establishment and reconciliation of increasingly complex interactions. However, as Cortina, Magley, Williams, and Langhout (2001) argued that courteousness and kindness are rare in today’s fast-paced work environments; instead, forms of interpersonal maltreatment are common. While the studies in the literature focus more on forms of maltreatment in the workplace such as mobbing, the need to understand subtler forms of maltreatment such as mistreatment behaviors is increasing (Cortina et al., 2001; Cortina, 2008). Andersson and Pearson (1999) commonly define to these subtler forms of workplace maltreatment as acts of incivility.

Incivility means being rude and disrespectful towards others, contrary to norms in interpersonal relationships (Andersson & Pearson, 1999). Incivility is created by rude, insensitive, disrespectful, and inconsiderate behaviors with ambiguous intent to harm individuals (Pearson, Andersson, & Porath, 2000). Lim, Cortina, and Magley (2008) suggest that unlike serious antisocial behaviors such as harassment, aggression or sabotage, incivility is seen as a milder deviant behavior with less obvious intention to harm. Andersson and Pearson (1999) also suggest that incivility is a deviant behavior such as aggression, but it is a behavior with less intense and uncertain intention to harm. The distinguishing feature of incivility is the uncertain intention to cause harm, perceived by the eyes of the target and/or the observers. In the case of incivility, the purpose is not clear and is subject to different interpretation.

Two defining components of incivility are behaviors with uncertain intention to harm the target and low intensity. Incivility is a subtle form of mistreatment that victims may not be aware of as uncivil behavior is indeed as much as workplace maltreatment (Lim et al., 2008). While forms of workplace maltreatment, such as physical aggression, more clearly indicate a clear goal of harm to the target, the purpose behind uncivil behavior is unclear. Since incivility is a vague form of maltreatment, it is difficult for the victim to determine whether the maltreatment was intentional (Cragg, 2018).

Common examples of incivility behavior are disregarding the efforts of others, sending e-mails or messages during meetings, talking to others, not listening, not believing others, not giving information, showing little or no interest in the thoughts of others, saying insulting words and avoiding someone (Porath & Pearson, 2010), writing bad and insulting notes or e-mails, treating others like children, scolding someone for an act in which they play no role, treating people quietly, publicly scolding someone, making unfounded accusations and spreading gossip (Pearson et al., 2000). As the examples show, incivility includes all kinds of subtle forms of harassment, such as gossiping, spreading rumors, or being rude, but it is not limited to verbal abuse that it also includes nonverbal behaviors such as excluding others and ignoring coworkers (Lim et al., 2008).

Incivility is related to some existing structures such as aggression and violence, but it differs from them (Andersson & Pearson, 1999; Pearson et al., 2000). Aggression is defined as behavior that aims to harm others physically or psychologically (American Psychological Association [APA], 2020a). While the purpose and goal of aggression is clear, the purpose of incivility is unclear. For example, ignoring others is a form of incivility. When someone ignores others, ignoring may be perceived differently by the target or observers, the purpose and goal of such uncivil behavior is unclear (Liu, Chi, Friedman, & Tsai, 2009). Violence is an extreme form of aggression such as assault, rape or murder (APA, 2020b). Compared with violence, incivility is much less intense and the intention to harm is unclear (Liu et al., 2009). Incivility cases are perceived as less damaging than
abuse in the workplace, but equally impede coworker relationships. Incivility is low in duration but high in frequency (Gupta & Kumari, 2020).

Incivility can be initiated by a variety of resources in the workplace, such as a coworker or supervisor, (Cragg, 2018) and can also be exhibited by clients (Schilpzand, De Pater, & Erez, 2016). The incivility behavior of coworkers and clients decreases the work commitment and performance of the employees, but the incivility behavior of the coworker has a higher effect on work commitment and performance (Wang & Chen, 2020).

Experience of incivility behavior varies with age, gender, racial/ethnic and professional seniority at institution. Researches showed that females in workplaces were more targets for incivility behaviors than males (Cortina, 2008; Pearson et al., 2000). Reio and Sanders-Reio (2011) also reached that males were more exposed to supervisor incivility behaviors and females to coworker incivility behaviors. On the other hand, Pearson and Porath (2005) stated that a young, female, and low-status newcomer to the organization might be the target of incivility. Cortina (2008) also stated that racial/ethnic group members were more frequently exposed to incivility behaviors.

Workplace incivility is a common phenomenon in today's organizations (Lata & Chaudhary, 2020). Incivility, if ignored in the early stages, can be the beginning of many crimes such as harassment and bullying. An overlooked incivility disrupts organizational health and individual health and harms organizations (Gupta & Kumari, 2020). Incivility has negative consequences for the mental and physical health of the target (Lim et al., 2008) and may reduce well-being off the work (Nicholson & Griffin, 2015). In addition, incivility can lead to increased employee absenteeism and decreased organizational commitment, job satisfaction, and work efficiency (Andersson & Pearson, 1999). Jiménez, Bregenzer, Leiter, and Magley (2018) suggest that low-intensity incivility has enough power to impair the quality of business life of the receivers. Caza and Cortina (2007) claim that incivility violates the norms of mutual respect and evokes feelings of injustice. Uncivil behaviors trigger the perception of social exclusion. That is, incivility goals make them feel socially rejected as if they were inappropriate or not belonging to the organization. Incivility means that its target is not worthy of proper respect for a skilled member of the perpetrator's social group (Jiménez et al., 2018). This situation leads to antisocial behavior in people against threats to their identity (Aquino & Douglas, 2003).

Cortina, et al. (2001) examined the effect of incivility on employees' well-being and found that incivility is associated with impaired health. In addition, the results of the research revealed that employees who experienced incivility were negatively affected by their occupational and psychological well-being, had psychological distress and job withdrawal such as depression and anxiety, decreased job satisfaction and job performance, and increased turnover intentions (Cortina et al., 2001; Lim et al., 2008; Porath & Pearson, 2010). Baker and Kim (2020) also found that incivility affects psychological well-being (PWB) and work quality-of-life (WQOL) of employee.

Incivility is thought to be related to the subjective well-being (SWB) of the individual. SWB, also called happiness in everyday speech, is the name given to various forms of happiness (Diener, 2019; Diener, 2000). Diener (2019) defined happiness or SWB as a process and stated that it is caused by some internal and external causes and in turn affects people's behavior and physiological states, so high SWB is not only a pleasant result, but also it is an important factor in future success.

Diener, Lucas and Oishi (2002) conceptualized SWB as the tendency to evaluate the life of the individual as happy or satisfactory in general terms, life satisfaction, the presence of positive effects such as enthusiasm in the individual's life, and the absence of negative effects such as anger. The concept of SWB, in the most general sense, is a general evaluation of the feelings and thoughts of the individual regarding his/her life. However, it also includes happiness, peace, satisfaction and life satisfaction (Diener, Oishi, & Lucas, 2003). SWB is a broad concept that includes people's emotional responses, field satisfaction and global life satisfaction decisions (Diener, Suh, Lucas, & Smith, 1999).
Diener (1984) explains SWB with criteria such as experiencing more positive emotions and getting satisfaction from life.

SWB, which is an evaluation of the positive and negative effects of life in terms of satisfaction and balance, has a hedonistic perspective such as having pleasure, experiencing positive affect, reaching life satisfaction, and avoiding negative emotions (Keyes, Shmotkin, & Ryff, 2002; Huta & Waterman, 2014). The combination of experiencing less negative affectivity as well as experiencing more positive emotions and achieving high life satisfaction is expressed as SWB (Keyes et al., 2002). The life satisfaction dimension of the SWB refers to the cognitive evaluation of the quality of life according to the criteria chosen by the individual (Diener, 1984). Positive affectivity includes feelings such as joy, trust and satisfaction; negative affectivity reflects negative emotions such as fear, anger, sadness, guilt and hate (Diener et al., 1999). It is seen that positive-negative affect and life satisfaction, which are components of SWB and various satisfaction domains. These are domains that increase the SWB level of the individual such as work, family, friendship relations, the group to which the individual belongs, health, money and leisure time, as well as affecting the individual's mental health (Tülek, 2011).

The fact that the positive emotions of the individual are higher than the negative ones and the higher life satisfaction indicates that SWB is high (Malkoç, 2011). High SWB depends on the superiority of pleasant affectivity over unpleasant affectivity and the positive cognitive judgment of the quality of individual's life. Cognitive judgment about positive emotions and satisfaction can be related to various life-domains, and their total reflects general life satisfaction (Tuzgöl Dost, 2005b). Individuals with high SWB feel pleasant emotions and evaluate life events positively. Individuals with low SWB feel unpleasant emotions by describing life conditions and events as undesirable situations (Myers & Diener, 1995). Diener (1984) and Myers and Diener (1995) state that individuals with higher SWB are more functional both socially, professionally and physically.

People's SWB levels are affected by both internal factors such as personality and feeling, and external factors such as the society in which they live. Some of the main determinants of SWB are an individual's innate temperament, the quality of his/her social relationships, the society he/she lives in, and his/her ability to meet basic needs (Diener, 2019). Diener et al. (1999) concluded that there is a correlation between education and SWB. Deniz, Karakuş, Traş, Eldeleklioğlu, Özyesil, and Hamarta (2013) also found a significant correlation between SWB and life satisfaction.

Life satisfaction, one of the key components of SWB, reflects a series of judgments about various aspects of an individual's life (Ilies, Yao, Curseu, & Liang, 2018). Life satisfaction represents the cognitive aspect of SWB, one of the concepts related to human happiness, and it is the cognitive evaluation of the individual's life (Diener, Emmons, Larsen, & Griffen, 1985). Life satisfaction can be perceived as a measure of an individual's overall life assessment (Rode, 2004). Diener et al. (1999) argues that life satisfaction includes satisfaction with current life, desire to change life, satisfaction from the past, satisfaction with the future, and the views of one's relatives about that individual's life.

Life satisfaction is the evaluation of individual's own life in contexts such as social relationships, occupational life, physical health, and earnings (Diener et al., 1999). Life satisfaction is a general assessment of the whole life in which individuals focus particularly on their wishes/needs and harmony with their assets (Çekici, Aydn Sünbül, Malkoç, Aslan Gordesli, & Arslan, 2019). It is generally accepted that the less inconsistency between the desires and achievements of the individual, the more life satisfaction will be (Diener et al., 2003). Pavot and Diener (1993) argue that it is possible
to compare an individual's perceived living conditions with a self-administered standard or set of standards, and the degree to which these conditions meet these standards indicates his/her high life satisfaction. Therefore, life satisfaction is a conscious cognitive judgment of a person's life in which judgment criteria depend on the person. Life satisfaction judgments are based on comparing individual's circumstances to the idealized standard. This judgment about the satisfaction level of people is related to their current situation (Naz, 2015).

Researchers distinguish between life-domain satisfaction and global life satisfaction. While life-domain satisfaction refers to satisfaction in certain domains of an individual's life such as job, marriage and income, global life satisfaction is much broader and consists of a comprehensive judgment of an individual's life (Sousa & Lyubomirsky, 2001). Abstract indicators such as hereditary tendencies, norms, perspective on life and personal beliefs are effective in evaluations of global life satisfaction. On the other hand, life-domain satisfaction reflects more concrete experiences. Global life satisfaction is associated with important positive and negative events. Life-domain satisfaction is often explained by daily experiences. Especially social relations and social support are the most important reasons for the high life-domain satisfaction and global life satisfaction. Although there is a strong relationship between global life satisfaction and life-domain satisfaction, it has been revealed that there are different concepts. While global life satisfaction is related to personality, life-domain satisfaction is related to conditions (Şimşek, 2011).

Studies have revealed that individuals tend to show similar levels of satisfaction over time and in many life-domains (Naz, 2015). A correlation has been found between work and life satisfaction findings (Diener et al., 1999). Şimşek (2011) determined that positive relationships and information flow in the workplace increase life satisfaction. Stones and Kozma (1986) found that people who are satisfied with their lives tend to find more satisfaction in their jobs. Şimşek (2011) indicates that increasing life satisfaction will prevent the occurrence of many individual and social problems and will facilitate the resolution of problems.

The literature reveals that the incivility behaviors that employees encounter in the work environment have a negative effect on their SWB and therefore their life satisfaction. In this study, it was aimed to determine the predictive relationships between the incivility behaviors faced by guidance counselors and SWB and life-domain satisfaction, and to test the model created based on this correlation.

Researches in workplaces have generally focused on serious antisocial behaviors such as aggression, harassment and mobbing. However, less is known about subtler harassment such as incivility (Jiménez et al., 2018; Karim, Bibi, Rehman, & Khan, 2015). Studies conducted in Turkey have focused on mobbing, violence and aggression etc. (Solmuş, 2005; Uzbaş, 2009; Ançel, Yuva, & Öztuna, 2012; Hasta & Güler, 2013; Yenilmez & Seferoğlu, 2013; Horzum & Ayas, 2013; Özdevecioğlu, Can, & Akın, 2013; Uysal, Ekici, Önal, & Kulakoğlu, 2019). A clear analysis of the current situation is needed to develop interventions in the field of incivility (Jiménez et al., 2018). Andersson and Pearson (1999) argue that organizations that want to reduce incivility should address interpersonal rude behaviors quickly and fairly. Otherwise, expectations and norms throughout the organization will be eroded. The potential relationships between incivility and more intense forms of maltreatment should be of great interest to researchers who are investigating aggressive behavior in organizations, as well as managers committed to preventing aggression and violence in the workplace.

Considering the inadequacy of research on incivility, this study is expected to fill the gap in the literature and contribute to the literature on incivility behaviors in general and incivility behaviors faced by guidance counselors in particular. In addition, considering the predictive effects of incivility behaviors faced by guidance counselors according to the results of this study, it will contribute to the development and initiation of studies aimed at increasing the SWB and life-domain satisfaction levels of guidance counselors in schools. In addition, it is thought that the results of this research will guide administrators and planners in preventing incivility behaviors faced by guidance counselors, will
METHOD

Research Model

This study, which aims to determine the predictive relationships between the incivility behaviors faced by guidance counselors and SWB and life-domain satisfaction, is in the relational surveying model, which is a subtype of the general surveying model. General surveying models are survey studies conducted in order to reach a general judgment about the population on the whole of the population or on a group of samples or samples taken from the population. General surveying models allow single or relational surveys (Karasar, 2015). In the study, the relational survey model, which is a subtype of the survey model, was used. Relational survey is a research model conducted to determine the correlation between two or more variables and to obtain clues about cause and effect (Büyüköztürk, Kılıç-Çakmak, Akgün, Karadeniz, & Demirel, 2008).

Study Group

The study group was selected using the disproportionate appropriate sampling method. A total of 350 (198 females and 152 males) guidance counselors, who were in charge in preschools, primary schools, secondary schools, high schools and equivalent schools affiliated to the state in different regions of Turkey and the Guidance and Research Center, were recruited for this study. Participants had 1-27 years professional seniority.

Data Collection Instruments

In the study, the "School Incivility Scale-SIS" to measure the incivility behaviors faced by guidance counselors, and the "Subjective Well-Being Scale" to determine their subjective well-being level, "Personal Wellbeing Index-A" to determine satisfaction in life-domains and a “Personal Information Form” developed by the researchers were applied to sample.

School Incivility Scale-SIS: The scale was developed by Yıldırım, Unal and Surucu (2013) to measure the prevalence of rude behavior in schools. It is a 19-item, 5-point Likert-type, three-dimensional scale including trivialization, ignoring and privacy invasion. The respondents were asked how often they encountered each item in the SIS in the last year. Responses to the items were rated as 1=never, 2=rarely, 3=sometimes, 4=usually, and 5=always. As a result of the exploratory factor analysis conducted to determine the validity of the scale, it was determined that the KMO value was .97. In line with this finding, it was concluded that the sample size was “perfectly adequate” for factor analysis (Şencan, 2005; Tavşancıl, 2006). Also, according to Bartlett's test of sphericity, the chi-square value was found to be significant (χ²(780) = 3,07; p<.01). Accordingly, it was accepted that the data were obtained from multivariate normal structure. The first of the determined factors explains 33.46% of the total variance regarding the scale, the second explains 20.19% and the third 17.08%. The total variance explained by these three factors is 70.73%. Item total correlation values of all items in the scale were calculated between 0.59 and 0.81. The independent sample t-test values of the significance between the item average scores of the lower 27% and upper 27% groups formed according to the total scores of the scale are significant for all items in the scale (p <.001). This result shows that all items have distinctive features. There is a significant relationship at the level of 0.01 between the sub-dimensions of SIS. The Cronbach’s Alpha internal consistency coefficient calculated based on item analysis to test the reliability of the scale is .94 for the trivialization, dimension, .88 for the ignoring dimension and .87 for the privacy invasion dimension. The data obtained show that the items in the scale have high validity and are aimed at measuring the same behavior and have construct validity and reliability to measure rude behaviors in school. SIS is a valid and reliable scale to measure incivility behaviors in
schools according to the findings (Yildirim, Unal, & Surucu, 2013). In this study the Cronbach’s Alpha reliability coefficient of the scale was calculated as .91 and it was found to be reliable.

**Subjective Well-Being Scale**: The scale developed by Tuzgöl Dost (2005a) consists of 46 items and 12 sub-dimensions that include personal judgments about life-domains and positive and negative emotions. The response system is a five-point Likert scale for each statement: "(5) Completely Suitable", "(4) Mostly Suitable", "(3) Partially Suitable", "(2) Somewhat Suitable" and "(1) Not Suitable at all". The score of each item varies between "5 and 1". The scale items are 26 positive and 20 negative statements. Negative statements are scored by reversing. The lowest score is 46 and the highest score is 230 that can be obtained from the scale. High scores indicate high subjective well-being level. In the factor analysis study conducted to test the validity of the Subjective Well-Being Scale, the KMO coefficient was found to be .861, and the Bartlett test was found to be significant. The scale was accepted to have a general factor besides having 12 factors. The Cronbach’s Alpha reliability coefficient of the scale was calculated as .93 and the Pearson Product-Moment Correlation coefficient was calculated as .86 as a result of the test-retest method. Reliability coefficients show that the scale can be used safely to measure the subjective well-being levels of university students. It would be beneficial to carry out validity and reliability studies on different age groups and samples (Tuzgöl Dost, 2005a). In this study the Cronbach’s Alpha reliability coefficient of the scale was calculated as .94 and it was found to be reliable.

**Life-Domain Satisfaction Scale (Personal Wellbeing Index-A)**: The scale, translated into Turkish and adapted by Şimşek (2011), was developed by the International Wellbeing Group (2006) based on the Comprehensive Quality of Life Scale (Cummins, 1997). The scale measures well-being in 8 basic domains of life with 8 questions in total and has a 0-10 degree; 0: Totally Insatiable, 10: Fully Satisfied. There is also a question that measures general life well-being. 8 factors in the scale explain 30% to 60% of the variance regarding the whole life satisfaction. The item “Your understanding of holiness and how satisfied you are with your religion”, which is one of these factors and was added to the scale later, was not included in this study because it does not affect the variance of life satisfaction in the Australian sample and may cause drawback for the sample. Life-domains measured with a total of 7 questions are living standards, personal health, success in life, personal relationships, personal security, community connectivity and future security. These domains can unite under a general well-being factor. In studies conducted in Australia, the Cronbach’s Alpha coefficient was calculated between .70 and .85, and the test-retest reliability was reported as .84 in 1-2 weeks. The scale has a parallel test validity of .78 with the Satisfaction with Life Scale of Diener et al. (1985) (International Wellbeing Group, 2006). The Cronbach Alpha of Turkish version of the test is .87 and parallel test validity with The Satisfaction with Life Scale (Diener et al., 1985) is .75. The average of 7 items (M = 7.06, SD = 1.64) in the score range of 0-10 in the Life-Domains Satisfaction Scale is 70.6 out of 100 (Şimşek, 2011). In this study the Cronbach’s Alpha reliability coefficient of the scale was calculated as .90 and it was found to be reliable.

**Data Collection and Analysis**

In order to collect the data, measuring instruments consisting of the School Incivility Scale, Subjective Well-Being Scale, Life-Domain Satisfaction Scale and personal information form were applied to the guidance counselors in the study group using the disproportionate sampling method. Guidance counselors working in different regions of Turkey were reached by e-mail and the scales were applied on a volunteer bases via Google Drive. The research data were analyzed using the SPSS package program. The predictive relationships between the incivility behaviors faced by the guidance counselors and the domains of subjective well-being and life-domain satisfaction were analyzed using the AMOS 16 Software within the "Structural Equation Model". Structural equation modeling is a statistical approach that reveals the causal and reciprocal relationships between observed and latent variables to test a theoretical model (Schumacker & Lomax, 2004). AMOS Software is also used to reveal the data observed in the study and the relationships between latent variables (Dilmaç & Özkan, 2019). The statistical significance level of the data in the study was determined as p<0.01.
FINDINGS

In the last model obtained as a result of the analysis of the data ($X^2 = 611.5014$, $df = 216$, $p < .001$), three exogenous (trivialization, ignoring, privacy invasion) and twenty endogenous (comparing their life with their own past and the life of others, positive and negative emotions, goals, self-confidence, optimism, activities of interest, friendships, future outlook, family relationships, envy of others' life, coping with life's difficulties, pessimism) and (general satisfaction, living standards, personal health, success in life, personal relationships, feeling secure community membership, future security) data was included. Each of the ways shown in the model was found to be statistically significant. The Bentler-Bonett Normed Fit Index (NFI), The Tucker-Lewis Coefficient Fit Index (TLI), and other fit indexes showed that the model fit well (Table 1). Each of the two-way correlations between the endogenous data in the model has high values and is statistically significant.

Table 1. Statistical values regarding the fit indexes of the structural equation model

<table>
<thead>
<tr>
<th>Indexes</th>
<th>Good Fit Values</th>
<th>Acceptable Fit Values</th>
<th>Fit Index Values of the Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>($X^2$/df)</td>
<td>$\leq 3$</td>
<td>$\leq 4-5$</td>
<td>2.83</td>
</tr>
<tr>
<td>RMSEA</td>
<td>$\leq 0.05$</td>
<td>0.06-0.08</td>
<td>0.07</td>
</tr>
<tr>
<td>SRMR</td>
<td>$\leq 0.05$</td>
<td>0.06-0.08</td>
<td>0.05</td>
</tr>
<tr>
<td>IFI</td>
<td>$\geq 0.95$</td>
<td>0.94-0.90</td>
<td>0.92</td>
</tr>
<tr>
<td>GFI</td>
<td>$\geq 0.90$</td>
<td>0.89-0.85</td>
<td>0.86</td>
</tr>
<tr>
<td>TLI</td>
<td>$\geq 0.95$</td>
<td>0.94-0.90</td>
<td>0.90</td>
</tr>
</tbody>
</table>

When the fit values in Table 1 were examined, it was found that $X^2$/df=2.83, RMSEA=0.07, SRMR=0.05, IFI=0.92, GFI=0.86, TLI=0.90. In general, the results show that the model has the desired level of fit values (Bollen, 1989; Browne & Cudeck, 1993; Byrne, 2010; Hu & Bentler, 1999; Kline, 2011; Tanaka & Huba, 1985). The tested single factor model was shown in Figure 1. All paths shown in the model are significant at the 0.001 level.

Figure 1. Path analysis for the model
<table>
<thead>
<tr>
<th>Predictive Variable</th>
<th>Dependent Variable</th>
<th>Total Impact</th>
<th>Direct Impact</th>
<th>Indirect Impact</th>
<th>Standard Error</th>
<th>Critical Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incivility</td>
<td>Subjective Well-Being</td>
<td>-0.30</td>
<td>-0.30</td>
<td>0</td>
<td>0.01</td>
<td>-4.42*</td>
</tr>
<tr>
<td>Incivility</td>
<td>Life Satisfaction</td>
<td>-0.35</td>
<td>-0.11</td>
<td>-0.24</td>
<td>0.01</td>
<td>-2.78*</td>
</tr>
<tr>
<td>Subjective Well-Being</td>
<td>Life Satisfaction</td>
<td>0.80</td>
<td>0.80</td>
<td>0</td>
<td>0.10</td>
<td>9.67*</td>
</tr>
</tbody>
</table>

*p<0.01

When the model in the figure is examined, it is seen that the most important independent variable (t=−4.42, p<0.01) that affects the SWBs of guidance counselors is the incivility variable. The correlation coefficient value for this factor was found to be β=−.030. When the predictive relationships between guidance counselors' SWBs and the incivility variable were examined, it was determined that there was a negative linear relationship. The findings reveal that with the increase in incivility faced by guidance counselors, their SWB will decrease.

It is seen that the most important independent variable affecting life-domain satisfaction in the model (t=9.67, p<0.01) is the subjective well-being variable. The correlation coefficient value for this factor was determined as β=0.80. When the predictor relationships between guidance counselors' life-domain satisfaction and SWBs were examined, it was determined that there was a positive linear relationship. The findings show that as the guidance counselors' subjective well-being increases, life-domain satisfaction levels will also increase.

In addition, it is seen that the second most important variable (t=−2.78, p<0.01) that affects the life-domain satisfaction level in the tested model is the incivility variable. The correlation coefficient value for this factor was determined as β=−0.11. When the predictive relationships between guidance counselors' life-domain satisfaction and incivility were examined, it was determined that there was a negative linear relationship. The findings show that life-domain satisfaction will decrease with the increase in incivility that guidance counselors are exposed to.

**DISCUSSION AND CONCLUSION**

As a result of the analysis of the research data, it is seen that the most important independent variable affecting the SWBs of the guidance counselors is the incivility variable. When the predictive relationships between guidance counselors' SWBs and the incivility variable were examined, it was determined that there was a negative linear relationship. The findings reveal that with the increase in incivility faced by guidance counselors, their SWBs will decrease.

Similar to the findings of the research, Nicholson and Griffin (2015) concluded that incivility was negatively related to situational well-being and psychological detachment in their study. In addition, the results highlight the continued impact of rudeness and disrespect on workers' well-being in the workplace. Tortumlu and Taş (2020) found that the variables of incivility behavior and loneliness in professional life significantly affected happiness in the workplace. Their result showed that incivility behaviors and loneliness decreased happiness, while incivility behaviors increased loneliness in professional life. In the study conducted on healthcare home workers, it was seen that incivility was ranked among the factors that negatively affected the subjective well-being of the participants (Sağlam, 2020). In their research, Caza and Cortina (2007) stated that more attention should be paid to minor rudeness, ridicule and exclusion in organizations, and although it is seemingly insignificant, this may have a profound negative effect on individual well-being of incivilities. Jamal and Siddiqui (2020) and Kundu and Tuteja (2020) stated that experiencing incivility at work increased the likelihood of emotional exhaustion. Amanullah (2021) also concluded that workplace incivility mediated the relationship between passive leadership and emotional exhaustion of employees.
Analysis of the research findings obtained by Hwang, Yoon, and Lee (2020) showed a significant correlation between organizational incivility, job stress, psychological exhaustion, courage and job satisfaction. It was also found that organizational incivility had a significant effect on job stress, psychological exhaustion, courage and job satisfaction. He, Walker, Payne, and Miner (2020) also reported that incivility in the workplace was associated with numerous negative job (job satisfaction, exhaustion) and non-job (conflict with family, life satisfaction) outcomes. Schilpzand et al. (2016) claimed that incivility is a costly and common workplace behavior with significant negative emotional, cognitive, and behavioral consequences for goals, witnesses, and provokers. Therefore, it is important to continue research efforts that seek to improve our understanding of incivility in the workplace and can help reduce this harmful behavior in its different forms. Likewise, Jiménez et al. (2018) stated that a clear analysis of incivility behaviors in the workplace is the key factor in developing effective interventions in the work environment. In this respect, it is important to reveal the relationship between incivility and SWB that emerged with this research.

Ensuring minimal incivility in the workplace is the most important measure an organization can do (Gupta & Kumari, 2020). Organizations can reduce incivility by implementing civility interventions such as Civility, Respect, Engagement in the Workforce (CREW). CREW’s aim is to increase workplace politeness by improving the interpersonal climate in workgroups (Osatuke, Moore, Ward, Dyrenforth, & Belton, 2009). Cragg (2018) supports that if organizations can help employees become stronger, individuals can be happier and healthier employees by perceiving fewer examples of incivility in the workplace. The findings of the study conducted by Ayrancı and Kumral (2020) clearly indicated that the perception of rude and negative behaviors was a motivating element of the participants' reluctance to be in the work environment. As a result of the studies of Leiter, Laschinger Day, and Oore (2011) and Leiter, Day, Oore, and Laschinger (2012), it was determined that the civility intervention program reduced the incivility frequency in the workplace and increased the well-being of the employees. Meier and Gross (2015) argued that an indirect way to reduce incivility in the workplace is to reduce work stress. Lee (2020) determined that incivility and work stress showed a significant negative correlation with teacher competence, and that work stress had a mediating effect on the relationship between incivility and teacher competence. Çiçek and Çiçek (2020) found that the relationship between workplace incivility and creative employee performance was mediated by leader-member interaction. They also stated that although incivility behavior negatively affected the creativity of the employee, positive interaction between the leader and followers might eliminate this negativity. In addition to these, the leader has the potential to overcome this situation by managing the incivility in the workplace as well as managing many negativities and conflicts. Reducing incivility in the workplace by various methods will contribute to the increase of employees' SWBs individually and organizationally, and thus to be more productive.

Another result that emerged in the analysis of the data is that the most important independent variable affecting life-domain satisfaction is the SWB variable. When the predictor relationships between guidance counselors' life-domain satisfaction and SWBs were examined, it was determined that there was a positive linear relationship. The findings reveal that as the SWBs of guidance counselors increase, their life-domain satisfaction level will also increase.

In parallel with this finding, as stated in the introduction, Myers and Diener (1995) concluded that individuals with high SWB feel pleasant emotions and evaluate life events positively. Individuals with low SWB, on the other hand, describe life conditions and events as undesirable situations and feel unpleasant emotions such as depression and anger. Therefore, an individual's high SWB will perceive the events in work and non-work life more positively and will make them happier, healthier and more productive. Similar to the study results, Diener (2019) concluded that people with high SBW function healthier and more effectively than people who are chronically stressed, depressed or angry.

Contrary to the finding obtained in this study, Suh, Diener, and Fujita (1996) stated that changes in life events can change the SWB level of the person, at least temporarily. People experience a high SWB when they feel many positive and little negative emotions, engage in engaging activities,
experience many joys and little pain, and are satisfied with their lives (Diener, 2000). Positive events such as success and promotion are likely to increase a person's SWB. Negative events such as getting low mark may decrease a person's SWB (Suh et al., 1996). From another point of view, the high level of satisfaction and positive feelings obtained by the individual as a result of the general evaluation of life indicates that the SWB level is high (Myers & Dinner, 1995). According to the findings of his study, Alghamdi (2015) claims that life satisfaction is related to behavior in the workplace, including job satisfaction, and this affects the mental and physical health and well-being of the employees. This information differs with the finding that the most important independent variable affecting life-domain satisfaction is the SWB variable. This situation can be interpreted as life-domain satisfaction and SWB are related to each other, life-domain satisfaction affects SWB, and SWB affects life-domain satisfaction.

According to the last result of the analysis of the research data, it is seen that the second most important variable affecting the life-domain satisfaction level is the incivility variable. When the predictive relationships between guidance counselors' life-domain satisfaction and incivility were examined, it was determined that there was a negative linear relationship. The findings show that life-domain satisfaction will decrease with the increase in incivility that guidance counselors are exposed to. As a result of the research conducted by Hwang et al. (2020), it was determined that incivility negatively affected life satisfaction, and incivility had a negative correlation with life satisfaction. In addition, as a result of the research, it was seen that the incivility of the manager has a negative effect on life satisfaction. In other words, manager incivility experienced by office workers directly affects life satisfaction. The analysis results of the research findings made by Withrow (2014) also suggest that manager incivility may mediate or partially mediate the relationship between customer/coworker incivility and life satisfaction. In this case, the life-domain satisfaction of employees who are exposed to incivility behaviors in the business environment is negatively affected. For example, the life-domain satisfaction of individuals who are subjected to incivility behavior such as silent responses in the work environment, ignoring, interfering with others, making other interviews during the meeting, bad glances or texting at inappropriate times will decrease. As stated in the interpretation of the first finding, reducing incivility with civility intervention programs in the work environment will contribute to the increase in life-domain satisfaction of the employees, and thus, their satisfaction from life events. Çebi Karaaslan, Çalışmazur, and Emre Aysin (2021) also included employment status satisfaction as one of the influential factors on life satisfaction. In other words, employment status satisfaction has an effect on life satisfaction. However, according to the results of the research conducted by Miner, Settles, Pratt-Hyatt and Brady (2012), it showed that there was no relationship between incivility level and life satisfaction in those with higher perception of organizational support. According to this result, it can be said that incivility will not have a negative effect on life-domain satisfaction in cases where employees' perception of organizational support is increased. Baker and Kim (2020) reached that administrative procedural and emotional support significantly affected the employee's psychological well-being (PWB) and work quality-of-life (WQOL) levels. In short, emotional and procedural support has a significant interaction effect on PWB and WQOL.

The findings of this study can be an important indicator for successful counseling practice and positive mental health. Based on the results of this study, it should be taken into consideration by the relevant institutions and individuals that the experience of guidance counselors to less incivility is important in increasing their subjective well-being and life satisfaction. In schools, the most important role belongs to the principal. In addition, other teachers, students and parents are also likely to be exposed to incivility behavior in the schools of guidance counselors who are exposed to incivility behavior. School principals can be role model to all employees by exhibiting civil behaviors first. Besides, they can make civil behavior a part of school culture by accepting and popularizing it as the value of the school. When acting civil is a part of the school culture, the school may become a more productive organization, as all the positive effects of civil behavior will appear on all employees, together with the guidance counselor.
Determining the sources of incivility behaviors faced by guidance counselors, determining the rules to prevent these behaviors and preparing awareness and regulatory programs for those who exhibit these behaviors, increasing interpersonal relations and communication skills, making corrective activities by making use of seminars and trainings to be organized on these issues will prevent guidance counselors from being exposed to incivility. Therefore, it will contribute to increasing their subjective well-being and life satisfaction.

No matter who starts incivility, it can do the same damage to both parties. For this reason, the person should avoid incivility behaviors regardless of the position in the institution. In this context, by investigating who (school principal, vice principal, teachers, other employees, students and parents) exhibits incivility behaviors towards guidance counselors, training activities can be conducted for employees who exhibit more incivility behavior.

The situations of fulfilling the duties of guidance counselors who are exposed to less incivility, have high subjective well-being and life satisfaction and their reflection on the students can be examined in the future.

The results obtained by doing similar studies on different groups, teachers in different branches and employees of different institutions can be compared with the results of this study.

REFERENCES


Amanullah, R. (2021). *Impact of passive leadership on emotional exhaustion with the mediating role of workplace incivility and moderating role of affective commitment*, A thesis submitted in partial fulfillment for the degree of Master of Science, Faculty of Management & Social Sciences Department of Management Sciences, Capital University of Science and Technology, Islamabad.


A Study on The Soft Skills of Pre-Service Teachers*

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Abstract

Soft skills refer to the skills, competencies, and characteristics that pertain to personality, attitude, and behaviour instead of to formal or technical knowledge. While they are necessary to ensure a person’s success, these skills are not easily demonstrated through a CV, diploma, or certificate and can only be evaluated by specialists. Soft skills cover proficiencies such as communication, problem-solving, time-management, teamwork, and leadership, and are considered essential, especially for teachers as they stand at the very heart of the teaching and learning process. This particular research was motivated to investigate the soft skills of pre-service teachers attending teacher training programmes at state universities in Turkey. In line with the research objective, the data were gathered through the soft skills survey adapted from the Brookings Soft Skills Report Card. The participant responses to the five-point items were quantitatively analysed through SPSS 21.0. The research findings indicated that pre-service teachers significantly differ in their perceived soft skills regarding major and seniority; however, no correlation was found between these skills and gender. This research is hoped to contribute to the existing literature on teacher training via the practical implications developed based on its results.

Keywords: Soft Skills, Pre-Service Teachers, Teacher Training

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INTRODUCTION

It has been well documented that the social and economic welfare of countries is largely determined by their qualified labour force and thus education. A growing body of research has indicated a positive correlation between economic development of a country and quality of education at various levels (Woolhouse & Cramphorn, 1999; Lewin, Little, & Colelough, 1982; Öztürk, 2005; Yi-ping, 2007; Tilak, 2010; Hanushek, & Woessmann, 2010; Osmankovic, Jahic, & Sehic, 2011; Breton, 2012; Misra, 2013; Khan, Omar-Fauzee, & Daud, 2015; Mishra, 2016; Saviotti, Pyka, & Jun, 2016; Hanushek, & Woessmann, 2020). Considering the teacher’s indispensable role in educational processes, it can be concluded that the socio-economic welfare state of a country plays a large role in the presence of effective teachers at different educational levels. In a similar vein, the existing literature provides evidence for the influence of teacher quality and competencies on student success (Sanders & Rivers, 1996; Darling-Hammond, 2000; OECD, 2005). In a study conducted in South African schools, Fleischmann (2013) found that teachers who are perceived as ‘excellent’ exhibit superior intrapersonal behavioural, interpersonal conceptual, and interpersonal affective soft skills. The 2005 OECD report highlighted that “teachers are now expected to have much broader roles, taking into account the individual development of children and young people, the management of learning processes in the classroom, the development of the entire school as a ‘learning community’, and connections with the local community and the wider world” (OECD, 2005, p. 3). The report further introduced teacher responsibilities at four levels: (i) individual student level (initiating and managing learning processes, responding effectively to the learning needs of individual learners, and integrating formative and summative assessment), (ii) classroom level (teaching in multi-cultural classrooms, new cross-curricular emphases, and integrating students with special needs), (iii) school level (working and planning in teams, evaluation and systematic improvement planning, ICT use in teaching and administration and management, and shared leadership), and (iv) level of parents and the wider community (providing professional advice to parents and building community partnerships for learning) (p. 3). Beyond the acquisition of field-specific content knowledge and pedagogical knowledge, fulfillment of these roles indisputably involves competence in soft skills, which refer to ‘the skills, abilities, and traits that pertain to personality, attitude, and behaviour rather than to formal or technical knowledge’ (Moss & Tilly, 1996, p. 253). Even though they contribute to 85% of one’s success (Wats & Wats, 2009), these skills are not easily demonstrated by CV, diploma or certificate and can only be evaluated by specialists like psychologists (Pop, 2014). Yet, they are considered essential especially for the teachers who stand at the very heart of teaching and learning processes because they cover such skills as communication, problem-solving, time-management, teamwork and leadership (Bunchberger, Campos, Kallos & Stephenson, 2000; Pachauri & Yadav, 2014; Riedler & Eryaman, 2016; Ünsal & Çetin, 2019; Çetin & Sadık, 2020; Çetin & Ünsal, 2020). In that regard, much research has been conducted with such purposes as indicating the significance of these skills for teacher training and revealing the factors that influence the development of these skills in pre-service and in-service teachers. Kara and Çam (2007) suggested that using creative drama in the course of “Development and Learning” contributes to the development of collaborative and self-management skills in pre-service teachers and enables them to initiate and maintain interaction with others. Seven and Yoldaş (2007) found no correlation between the soft skills of pre-service classroom teachers and their gender. In a similar study, Girgin, Çetingöz and Ekinci-Vural (2011) reported no correlation between soft skills and gender in pre-service teachers although they noted that male students got higher scores than female students in the dimension of affective control. Conducting a study with the participation of two groups of pre-service Turkish teachers, Çetinkaya (2011) reported that the teachers generally held positive views on their own communication skills and that a statistically significant correlation was found between the groups regarding gender and seniority in favour of female and less senior pre-service teachers, respectively.

In a more recent research, Bozgün and Pekdoğan (2018) concluded that pre-service teachers differ in their social skills regarding such variables as gender, department, seniority and family income. The researchers reported that male students, students studying science teaching and classroom teaching, and those in their third year have higher social skills than female students, students who
study pre-school teaching, psychological counselling and guidance, and second year students, respectively.

Ngang et al. (2015) attempted to identify critical issues in soft skills development through teaching professional training and found that larger class sizes, being too academically focused, and insufficient period of training lead to failure in soft skills development. As a solution, the researchers proposed the use of an embedded model to ensure integration of soft skills in every course design. Balakrishnan and Anbuthasan (2016) noted that the rural and urban teachers differ significantly in their team-building skills and that state and private school teachers differ significantly in oral communication, computer skills, organisational ability, leadership and team-building skills. Türkan, Aydoğan and Sezer (2016) reported a correlation between the soft skills of prospective pre-school teachers and seniority in higher education. Lavilles and Robles (2017) indicated a significant relationship between teachers’ soft skills proficiency level and school performance in the Philippines. Likewise, Pumacayo-Quispe (2018) reported a direct correlation between teachers’ soft skills and the organisational climate in Peru. Romero-Cobeña (2019) evaluated the soft skills of teachers in Ecuador and concluded that teachers play important roles as trainers of people and always maintain good management in the quality of education provided within the educational unit. The study also noted that teachers reflect parents within the school by instilling respect and safety in the student so that excellent results are reflected in their performance. Peabody (2019) stated that school administrators interpreted soft skills as being the decisive factor in effective teaching and that they shared the importance of teachers building connections with their students through their positive relationships, which included the ability to recognise, understand, and manage their emotions and the students’ emotions for the benefit of student learning. In a quantitative research conducted in Peru, Guzmán-Britto (2019) found significant differences between the soft skills of teachers in public educational institutions. De Paniza (2019) conducted a project on the development of soft skills of teachers and teaching directors in Colombia and recommended the integration of a subject on soft skills from preschool to high school curricula. Similarly, Streltsova and Ivanova (2020) underlined the need for purposeful work on the development of soft skills of teachers in Russia.

The present study was an attempt to scrutinise Turkish pre-service teachers’ views on their soft skills. More specifically, it was intended to reveal whether they significantly differ in these skills regarding gender, seniority and major. Accordingly, the following research questions were raised:

1. What are the perceptions of pre-service teachers on their soft skills?
2. Do pre-service teachers significantly differ in their perceived soft skills regarding gender?
3. Do pre-service teachers significantly differ in their perceived soft skills regarding seniority?
4. Do pre-service teachers significantly differ in their perceived soft skills regarding major?

METHOD

Research model

The scanning model was adopted in this descriptive research. These models are utilised to describe a past or present case as it is (Karasar, 2012) and allow researchers to collect large-scale data (Fraenkel & Wallen, 2006).

Participants

The universe of the research was comprised of pre-service teachers enrolled in various teacher training programs at state universities in Turkey during the 2019-2020 academic year. Accordingly, a total of 540 undergraduate students attending four state universities in Turkey were selected using the
easily accessible sampling and participated in this quantitative research (Female: 79%, Male: 21%). Their majors are illustrated in Figure 1.

![Figure 1. Teacher training programmes attended by the participants](image)

As depicted in Figure 1, the participants receive training on how to teach different subjects on completion of their undergraduate education. The adequacy of sample size was confirmed by the Kaiser-Meyer-Olkin (KMO) measure of sample adequacy (.957: exceeding the recommended value of .60) and the Bartlett's test of sphericity (p <0.001). The participants ranged in age from 18 to 24 with a mean age of 20.8. At the time of data collection, they were enrolled in different levels (from freshmen to senior) within eight teacher training programmes (first year/freshmen: 18%, second year/sophomore: 22%, third year/junior: 26%, fourth year/senior: 34%).

**Data collection and analysis**

The research data were electronically gathered through the Soft Skills Survey adapted from the Brookings Soft Skills Report Card (Whitehurst, 2016). The survey utilised in this research was composed of two sections: (i) demographic info (age, gender, major, and year) and (ii) Likert items scaled from 1 (Strongly Disagree) to 5 (Strongly Agree). The latter was designed to elicit pre-service teachers views on their own soft skills in four categories, as described in Whitehurst (2016, p. 4): (i) Social skills (including how a student interacts with other students), (ii) Self-management (observable manifestations of what has been referred to as executive functions or self-regulation, i.e., the student’s ability to take control over what would otherwise be automatic reactions by planning, focusing attention, reframing experiences, and using mental tools), (iii) Academic social skills (both social and cognitive and play an ancillary role in carrying out traditional academic tasks, e.g., the ability to work independently), and (iv) Approaches to learning (including such things as the student’s engagement in school, pleasure in learning, and anxiety about performance).

Item validity was assured by obtaining expert opinions from two faculty members with specialisations in curriculum and instruction and Turkish teaching. The form was piloted with five students who would not participate in the research and finalised when no problem was reported during the process. Subsequently, the reliability was approved by Cronbach’s alpha coefficient (α=0.95) and that 58.9% of the total variance was explained in four dimensions, as shown in Table 1.
Participant responses to the survey items were quantitatively analysed through SPSS 21.0 to determine whether they significantly differed in their perceived soft skills regarding the variables of gender, major, and seniority. Lastly, statistical results were tabulated including frequency, arithmetic means, and standard deviation scores. The following section covers the research results and discussion.

**RESULTS AND DISCUSSION**

The first research question investigated pre-service teachers’ views on their soft skills. The statistical findings are illustrated in Table 2.

<table>
<thead>
<tr>
<th>Categories</th>
<th>Min.</th>
<th>Max.</th>
<th>sd</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social skills</td>
<td>1.50</td>
<td>5.00</td>
<td>.68707</td>
</tr>
<tr>
<td>Self-management</td>
<td>1.00</td>
<td>5.00</td>
<td>.72617</td>
</tr>
<tr>
<td>Academic social skills</td>
<td>1.00</td>
<td>5.00</td>
<td>.78250</td>
</tr>
<tr>
<td>Approaches to learning</td>
<td>1.38</td>
<td>5.00</td>
<td>.70223</td>
</tr>
<tr>
<td>Total</td>
<td>1.22</td>
<td>5.00</td>
<td>.63383</td>
</tr>
</tbody>
</table>

The findings indicated that the participants generally held positive views on their soft skills, which largely coincides with Çetinkaya (2011) who reported similar results in a previous study with Turkish pre-service teachers. It is seen that their perceived academic social skills are relatively higher than self-management, social skills, and approaches to learning, respectively. That is, they felt most confident with carrying out traditional academic tasks, followed by executive functions and/or self-regulation, interaction with others, and engagement in school. This might be attributed to the nature of education they received prior to higher education and the national testing system in Turkey, which requires students to achieve high scores on secondary school and university entrance exams in order to further their educations in high quality institutions. Both exams are composed of multiple-choice items designed to evaluate comprehension skills rather than productive skills including verbal and non-verbal communication skills, self-management skills, and social skills even though these skills are, to some extent, highlighted in the relevant school curricula. This situation, not surprisingly, has likely forced many students to develop traditional academic skills such as the ability to work independently rather than the ability to take part in pair-work or group work activities that could contribute to the development of their social and interactional skills by requiring them to communicate with other students. In order to gain a deeper understanding of this result, it is considered useful to outline their responses across the afore-mentioned categories. Responses to the category of social skills are displayed in Table 3.
Table 3. Pre-service teachers’ views on their social skills

<table>
<thead>
<tr>
<th></th>
<th>Str. disagree</th>
<th>Disagree</th>
<th>Undecided</th>
<th>Agree</th>
<th>Str. Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1- I provide my peers with positive feedback.</td>
<td>N 10</td>
<td>17</td>
<td>75</td>
<td>139</td>
<td>299</td>
</tr>
<tr>
<td></td>
<td>% 1,9</td>
<td>3,1</td>
<td>13,9</td>
<td>25,7</td>
<td>55,4</td>
</tr>
<tr>
<td>2- I offer help or assistance to my peers when needed.</td>
<td>N 10</td>
<td>10</td>
<td>57</td>
<td>105</td>
<td>361</td>
</tr>
<tr>
<td></td>
<td>% 1,9</td>
<td>1,3</td>
<td>10,6</td>
<td>19,4</td>
<td>66,9</td>
</tr>
<tr>
<td>3- I usually initiate interactions with my peers.</td>
<td>N 19</td>
<td>80</td>
<td>210</td>
<td>137</td>
<td>94</td>
</tr>
<tr>
<td></td>
<td>% 3,5</td>
<td>14,8</td>
<td>38,9</td>
<td>25,4</td>
<td>17,4</td>
</tr>
<tr>
<td>4- I participate in discussions with my peers.</td>
<td>N 12</td>
<td>24</td>
<td>95</td>
<td>176</td>
<td>233</td>
</tr>
<tr>
<td></td>
<td>% 2,2</td>
<td>4,4</td>
<td>17,6</td>
<td>32,6</td>
<td>43,1</td>
</tr>
<tr>
<td>5- I have a good sense of humour and share amusement with my pers.</td>
<td>N 13</td>
<td>31</td>
<td>107</td>
<td>138</td>
<td>251</td>
</tr>
<tr>
<td></td>
<td>% 2,4</td>
<td>5,7</td>
<td>19,8</td>
<td>25,6</td>
<td>46,5</td>
</tr>
<tr>
<td>6- I have enough friends.</td>
<td>N 21</td>
<td>43</td>
<td>102</td>
<td>118</td>
<td>256</td>
</tr>
<tr>
<td></td>
<td>% 3,9</td>
<td>8,0</td>
<td>18,9</td>
<td>21,9</td>
<td>47,4</td>
</tr>
<tr>
<td>7- I can lead my group (I can carry out leadership activities).</td>
<td>N 26</td>
<td>56</td>
<td>112</td>
<td>128</td>
<td>218</td>
</tr>
<tr>
<td></td>
<td>% 4,8</td>
<td>10,4</td>
<td>20,7</td>
<td>23,7</td>
<td>40,4</td>
</tr>
<tr>
<td>8- I can engage in inappropriate social behaviour, e.g., aggression</td>
<td>N 303</td>
<td>110</td>
<td>67</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>% 56,1</td>
<td>20,4</td>
<td>12,4</td>
<td>3,7</td>
<td>7,4</td>
</tr>
</tbody>
</table>

As seen in Table 3, the participants’ perceived social skills could be evaluated as being moderately high; however, a more detailed analysis of their responses to the items revealed that they did not feel confident enough with some of their social skills. Namely, they disagreed or remained undecided with regard to initiating interaction with peers (57%), leading the group (36%), having enough friends (31%), having a sense of humour (28%), participating in discussions (24%), and providing positive feedback to peers (19%). These results are thought-provoking as they indicate that some of participants did not feel confident in interacting with others at the desired level even though teachers are expected to be competent in interactions, especially with their students, colleagues, and parents. This might stem from the fact that the participants in concern are unwilling to interact with others simply because they are not social or initiative in nature and that they were not evaluated on such competences while being recruited to the teacher training programmes they are enrolled in. Furthermore, their responses imply that some of them might display inappropriate social behaviours such as aggression (23%). This particular finding also sounds alarming especially when considering that teachers are expected to be role models for students and to aid in resolving possible conflicts among them.

The second category of the survey required the participants to state their views on their self-management skills. The related results are demonstrated in Table 4.

Table 4. Pre-service teachers’ views on their self-management skills

<table>
<thead>
<tr>
<th></th>
<th>Str. disagree</th>
<th>Disagree</th>
<th>Undecided</th>
<th>Agree</th>
<th>Str. Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1- I can control my anger.</td>
<td>N 24</td>
<td>69</td>
<td>141</td>
<td>164</td>
<td>142</td>
</tr>
<tr>
<td></td>
<td>% 4,4</td>
<td>12,8</td>
<td>26,1</td>
<td>30,4</td>
<td>26,3</td>
</tr>
<tr>
<td>2- I accept and obey the legitimate rules.</td>
<td>N 14</td>
<td>17</td>
<td>70</td>
<td>147</td>
<td>292</td>
</tr>
<tr>
<td></td>
<td>% 2,6</td>
<td>3,1</td>
<td>13,0</td>
<td>27,2</td>
<td>54,1</td>
</tr>
<tr>
<td>3- I compromise with others to avoid conflict.</td>
<td>N 8</td>
<td>26</td>
<td>81</td>
<td>183</td>
<td>242</td>
</tr>
<tr>
<td></td>
<td>% 1,5</td>
<td>4,8</td>
<td>15,0</td>
<td>33,9</td>
<td>44,8</td>
</tr>
<tr>
<td>4- I respond in socially appropriate ways to criticism from others</td>
<td>N 8</td>
<td>26</td>
<td>79</td>
<td>216</td>
<td>211</td>
</tr>
<tr>
<td></td>
<td>% 1,5</td>
<td>4,8</td>
<td>14,6</td>
<td>40,0</td>
<td>39,1</td>
</tr>
<tr>
<td>5- I can handle teasing and social provocations.</td>
<td>N 21</td>
<td>60</td>
<td>165</td>
<td>144</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>% 3,9</td>
<td>11,1</td>
<td>30,6</td>
<td>26,7</td>
<td>27,8</td>
</tr>
<tr>
<td>6- I cooperate with others.</td>
<td>N 8</td>
<td>14</td>
<td>72</td>
<td>132</td>
<td>314</td>
</tr>
<tr>
<td></td>
<td>% 1,5</td>
<td>2,6</td>
<td>13,3</td>
<td>24,4</td>
<td>58,1</td>
</tr>
</tbody>
</table>
As in the case of social skills, the responses to this category pointed out that the participants held moderately positive views on their self-management skills. For instance, 90%, 84% and 83% of them stated that they respect teachers and staff at school, maintain attention to tasks and cooperate with others, respectively. These percentages are promising as teachers should display such intended behaviours. Yet again, their responses to certain items in this category are quite alarming as they indicated that they may fail to handle teasing and social provocations (46%), to control their anger (43%), to respond in socially appropriate ways to criticism from others (21%), to compromise with others to avoid conflict (21%), or to accept and obey the legitimate rules (19%). These findings might result from the fact that they were not evaluated on social and interactional competences in the university entrance exams or subjected to any tests that assess psychological resilience.

The third category of the survey was designed to elicit the participants’ views on their academic social skills which are considered to play a supplementary role in carrying out traditional academic tasks such as working independently and using appropriate study skills. Table 5 lays out the results in this category.

Table 5. Pre-service teachers’ views on their academic social skills

<table>
<thead>
<tr>
<th></th>
<th>Str. disagree</th>
<th>Disagree</th>
<th>Undecided</th>
<th>Agree</th>
<th>Str. Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1- I can work independently.</td>
<td>N 9</td>
<td>11</td>
<td>64</td>
<td>93</td>
<td>363</td>
</tr>
<tr>
<td>%</td>
<td>1,7</td>
<td>2,0</td>
<td>62,0</td>
<td>17,2</td>
<td>67,2</td>
</tr>
<tr>
<td>2- I complete assigned tasks on time.</td>
<td>N 11</td>
<td>29</td>
<td>87</td>
<td>119</td>
<td>294</td>
</tr>
<tr>
<td>%</td>
<td>2,0</td>
<td>5,4</td>
<td>11,5</td>
<td>22,0</td>
<td>54,4</td>
</tr>
<tr>
<td>3- I listen to and carry out teacher directions.</td>
<td>N 8</td>
<td>19</td>
<td>65</td>
<td>117</td>
<td>331</td>
</tr>
<tr>
<td>%</td>
<td>1,5</td>
<td>3,5</td>
<td>12,0</td>
<td>21,7</td>
<td>61,3</td>
</tr>
<tr>
<td>4- I produce work of acceptable quality for my ability level (assignment, presentation, project etc.)</td>
<td>N 8</td>
<td>18</td>
<td>73</td>
<td>166</td>
<td>275</td>
</tr>
<tr>
<td>%</td>
<td>1,5</td>
<td>3,3</td>
<td>13,5</td>
<td>30,7</td>
<td>50,9</td>
</tr>
<tr>
<td>5- I bring required materials to school.</td>
<td>N 6</td>
<td>32</td>
<td>69</td>
<td>144</td>
<td>289</td>
</tr>
<tr>
<td>%</td>
<td>1,1</td>
<td>5,9</td>
<td>12,8</td>
<td>26,7</td>
<td>53,5</td>
</tr>
<tr>
<td>6- I arrive at school on time and without undue absences.</td>
<td>N 20</td>
<td>32</td>
<td>86</td>
<td>147</td>
<td>255</td>
</tr>
<tr>
<td>%</td>
<td>3,7</td>
<td>5,9</td>
<td>15,9</td>
<td>27,2</td>
<td>47,2</td>
</tr>
<tr>
<td>7- I ask for assistance as needed, ask questions (to teachers/peers).</td>
<td>N 13</td>
<td>32</td>
<td>86</td>
<td>128</td>
<td>281</td>
</tr>
<tr>
<td>%</td>
<td>2,4</td>
<td>5,9</td>
<td>15,9</td>
<td>23,7</td>
<td>52,0</td>
</tr>
<tr>
<td>8- I use appropriate study skills.</td>
<td>N 8</td>
<td>28</td>
<td>99</td>
<td>167</td>
<td>238</td>
</tr>
<tr>
<td>%</td>
<td>1,5</td>
<td>5,2</td>
<td>18,3</td>
<td>30,9</td>
<td>44,1</td>
</tr>
</tbody>
</table>

The responses showed that participants tended to have moderately positive views on their academic social skills. Namely, 84% and 83% of them stated that they can work independently and that they listen and carry out teacher directions, respectively. However, some of them were not confident enough on items such as arriving at school on time and avoiding undue absences (26%), using appropriate study skills (25%), asking assistance as needed and asking questions to their teacher/peers (24%), completing the assignments on time (24%), and bringing the required materials to school (20%). In other words, at least one out of five pre-service teachers did not feel confident with carrying out their basic responsibilities as students. These findings raise significant questions about those who will train future students and expect them to carry out the responsibilities they currently do not and who will undertake such other responsibilities in the not-too-distant future.
The last category of the survey was composed of items designed to obtain the pre-service teachers’ views on their approaches to learning (e.g., student’s engagement in school, pleasure in learning, and anxiety about performance). The analysis results are presented in Table 6.

Table 6. Pre-service teachers’ views on their approaches to learning

<table>
<thead>
<tr>
<th>Item</th>
<th>Str. disagree</th>
<th>Disagree</th>
<th>Undecided</th>
<th>Agree</th>
<th>Str. Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1- I enjoy the school.</td>
<td>N 35</td>
<td>41</td>
<td>139</td>
<td>153</td>
<td>172</td>
</tr>
<tr>
<td></td>
<td>% 6.5</td>
<td>7.6</td>
<td>25.7</td>
<td>28.3</td>
<td>31.9</td>
</tr>
<tr>
<td>2- I take on challenging tasks.</td>
<td>N 19</td>
<td>53</td>
<td>138</td>
<td>168</td>
<td>162</td>
</tr>
<tr>
<td></td>
<td>% 3.5</td>
<td>9.8</td>
<td>25.6</td>
<td>31.1</td>
<td>30.0</td>
</tr>
<tr>
<td>3- I am confident with my abilities.</td>
<td>N 12</td>
<td>32</td>
<td>108</td>
<td>156</td>
<td>232</td>
</tr>
<tr>
<td></td>
<td>% 2.2</td>
<td>5.9</td>
<td>20.0</td>
<td>28.9</td>
<td>43.0</td>
</tr>
<tr>
<td>4- I work hard.</td>
<td>N 28</td>
<td>76</td>
<td>189</td>
<td>162</td>
<td>85</td>
</tr>
<tr>
<td></td>
<td>% 5.2</td>
<td>14.1</td>
<td>35.0</td>
<td>30.0</td>
<td>15.7</td>
</tr>
<tr>
<td>5- I am anxious and fearful with my courses.</td>
<td>N 84</td>
<td>82</td>
<td>138</td>
<td>140</td>
<td>96</td>
</tr>
<tr>
<td></td>
<td>% 15.6</td>
<td>15.2</td>
<td>25.6</td>
<td>25.9</td>
<td>17.8</td>
</tr>
<tr>
<td>6- I am involved with extracurricular school activities.</td>
<td>N 59</td>
<td>97</td>
<td>135</td>
<td>11</td>
<td>138</td>
</tr>
<tr>
<td></td>
<td>% 10.9</td>
<td>18.0</td>
<td>25.0</td>
<td>20.6</td>
<td>25.6</td>
</tr>
<tr>
<td>7- I am aware of settings I can work harder.</td>
<td>N 8</td>
<td>18</td>
<td>65</td>
<td>113</td>
<td>336</td>
</tr>
<tr>
<td></td>
<td>% 1.5</td>
<td>3.3</td>
<td>12.0</td>
<td>20.9</td>
<td>62.2</td>
</tr>
<tr>
<td>8- I am aware of my learning style (auditory, visual etc.)</td>
<td>N 11</td>
<td>21</td>
<td>57</td>
<td>108</td>
<td>343</td>
</tr>
<tr>
<td></td>
<td>% 2.0</td>
<td>3.9</td>
<td>10.6</td>
<td>20.0</td>
<td>63.5</td>
</tr>
</tbody>
</table>

As is suggested in Table 6, the participants did not feel as confident with their approaches to learning as their social skills, self-management skills, and academic social skills. For instance, only 31% of them did not feel anxious and fearful with the courses, while 46% of them were confident about working hard and getting involved in extracurricular school activities. In addition, only half of the participants stated that they enjoyed school, while 39% and 28% did not feel confident with taking on challenging tasks and their abilities, respectively. These findings point out an undesired level of anxiety, especially in the learning environment they are involved in. Furthermore, they indicate that many participants do not obtain pleasure from their schooling, which is likely to decrease their motivation and sense of school belonging and adversely affect their academic progress and success.

The second research question probed whether they significantly differ in their perceived soft skills with respect to gender. The independent samples t-test results indicated no significant difference between the female and male pre-service teachers in this concern (p>0.05). This particular finding overlaps with those reported in Seven and Yoldaş (2007) and Girgin, Çetingöz and Ekinci-Vural (2011) while contradicting with Bozgün and Pekdoğan (2018). The third research question investigated whether they differ in their perceived soft skills regarding seniority. The results of Tukey’s HSD multiple comparisons of means are illustrated in Table 7.

Table 7. Pre-service teachers’ views on their soft skills regarding seniority

<table>
<thead>
<tr>
<th>Grades</th>
<th>N</th>
<th>( \bar{x} )</th>
<th>SS</th>
<th>Source of variance</th>
<th>Sum of squares</th>
<th>sd</th>
<th>Mean of squares</th>
<th>( f )</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 1</td>
<td>98</td>
<td>4.0354</td>
<td>.706</td>
<td>Between group</td>
<td>5,853</td>
<td>3</td>
<td>1,951</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade 2</td>
<td>116</td>
<td>3.9896</td>
<td>.604</td>
<td>Within group</td>
<td>210,689</td>
<td>536</td>
<td>.393</td>
<td>4.963</td>
<td>0.020</td>
</tr>
<tr>
<td>Grade 3</td>
<td>142</td>
<td>3.9294</td>
<td>.709</td>
<td>Total</td>
<td>216,541</td>
<td>539</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade 4</td>
<td>184</td>
<td>4.1848</td>
<td>.519</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The results here reveal that the participants’ perceived soft skills are influenced by their seniority in higher education. The post-hoc test results showed a statistical difference in favour of...
senior students against junior and sophomore level students \((p<.05)\). This finding largely coincides with Türkan, Aydoğan and Sezer (2016) who previously reported such a correlation between the prospective pre-school teachers’ soft skills and the grade they were enrolled in and Bozgün and Pekdoğan (2018) who stated that 3rd year pre-service teachers have higher soft skills than 2nd year students, yet contradicts with Çetinkaya (2011) who noted that freshmen students have higher soft skills than senior students. On the other hand, as far as the three groups are concerned, it might be concluded that the length of study in higher education increases the perceived soft skills of pre-service teachers. The relatively higher scores of freshmen in comparison to 2nd and 3rd year students might be accounted for due to the less challenging nature of the first-year curriculum in comparison to the curricula of higher years. Besides, the distance education process implemented in the latest semester due to COVID-19 could also have had an impact on these results. Particularly, the latter could have eased responsibilities such as arriving to school on time, bringing necessary instructional materials to school, taking on challenging tasks, and working hard. In addition, the anxiety faced by some students in some face-to-face courses would have been reduced thanks to distance education. In a similar fashion, the participants did not experience those negative feelings during the assessment and evaluation procedure since they did not take the tests online. Instead, they were provided a considerable amount of time to respond to the test questions and/ or to prepare the assigned projects during the assessment periods (e.g., approximately one week). This might also have reduced their test anxiety and increased their perceived soft skills.

The final research question analysed the existence of a statistical difference between groups in terms of major. Accordingly, mean scores of the groups’ perceived soft skills were compared through analysis of variance and Tukey's HSD multiple comparisons of means, respectively. The statistical findings are provided in Table 8.

**Table 8. Pre-service teachers’ views on their soft skills regarding major**

<table>
<thead>
<tr>
<th>Major</th>
<th>N</th>
<th>x</th>
<th>SS</th>
<th>Source of variance</th>
<th>Sum of squares</th>
<th>SD</th>
<th>Mean of squares</th>
<th>f</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classroom Teaching</td>
<td>144</td>
<td>4,132</td>
<td>.540</td>
<td>Between group</td>
<td>10,509</td>
<td>7</td>
<td>1,501</td>
<td></td>
<td></td>
</tr>
<tr>
<td>English Lang. Teaching</td>
<td>100</td>
<td>3.903</td>
<td>.755</td>
<td>Within group</td>
<td>206,032</td>
<td>532</td>
<td>.387</td>
<td>3.877</td>
<td>.00</td>
</tr>
<tr>
<td>Turkish Lang. Teaching</td>
<td>70</td>
<td>3.964</td>
<td>.635</td>
<td>Total</td>
<td>216,541</td>
<td>539</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Sciences Teaching</td>
<td>36</td>
<td>4.293</td>
<td>.499</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics Teaching</td>
<td>56</td>
<td>3.847</td>
<td>.658</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Science Teaching</td>
<td>64</td>
<td>4.242</td>
<td>.609</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychological Couns. &amp;</td>
<td>38</td>
<td>4.044</td>
<td>.623</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guidance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-school Teaching</td>
<td>32</td>
<td>4.011</td>
<td>.553</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As shown in Table 8, participants studying social sciences teaching, science teaching and classroom teaching had higher soft skills than those studying other majors. This could be attributed to the fact that these programmes have a multidisciplinary structure and include more practice-based courses that require group work and communication among students while the other programmes are designed for teachers who will be teaching unique subjects and offer more theoretical rather than practice-based courses. For instance, the social sciences teaching programme simultaneously offers field-specific courses with different scopes such as geography, history, and anthropology while the science teaching programme offers practice-based courses in biology, chemistry and biology. Similarly, the classroom teaching programme contains a variety of practice-based and group work-oriented courses such as teaching literacy, mathematics, social sciences and physical activities, and drama. From this viewpoint, it would be unexpected to see that participants enrolled in pre-school teacher training programmes, which also have multidisciplinary structures and offer practice-based courses requiring collaboration and interaction among students, do not have as high soft skills as those who attending the three programmes in concern. It was not indeed when considering the fact that most
of them were freshmen who had not taken practice-based field-specific training courses at the time of data collection. Therefore, that the participants studying English language teaching, mathematics teaching, psychological counselling and guidance, and Turkish language teaching had relatively lower soft skills could be accounted for by the fact that these majors do not have a multidisciplinary structure and offer less practice-based courses. These findings coincide with Bozgün and Pekdoğan (2018) who previously found that pre-service science and classroom teachers have higher social skills than those who were enrolled in the programmes of pre-school teaching and psychological counselling and guidance.

CONCLUSION

The current research primarily investigated Turkish pre-service teachers’ perceived soft skills and whether they significantly differ in this respect regarding gender, seniority and major. The results indicated that they statistically differ in their perceived soft skills in terms of seniority and major, while no correlation was found between these skills and their gender. Namely, fourth year students had more positive views on their soft skills than second- and third-year students. The freshmen, on the other hand, were found to be more confident with their perceived soft skills than sophomores and juniors. This may be attributed to the distance education practices due to COVID-19 which eased their responsibilities and reduced anxiety they would likely have encountered during face-to-face education. As for the dimension of major, it was revealed that the pre-service teachers who were enrolled in programmes with multidisciplinary structures and more practise-based courses such as classroom teaching, social sciences teaching, and science teaching had statistically higher soft skills than those which offered more theoretical courses without significant student collaboration and interaction.

The research also demonstrated that pre-service teachers generally hold positive views of their own soft skills and that they are most confident with academic social skills, followed by self-management, social skills, and approaches to learning. However, a more detailed analysis of their responses to the individual items evidenced that varying percentages of them do not feel confident enough to interact and negotiate with others, to lead a group, to handle teasing and social provocations, to control their anger, to arrive at school on time and avoid undue absences, to complete the assigned tasks on time, to bring the instructional materials to school, to take on challenging tasks, and to get involved in extracurricular school activities.

It is noteworthy that the results reported here were elicited from the respondents own personal views on their soft skills; hence, it is quite possible for them to possess higher or lower levels of soft skills in reality. Nonetheless, the research results indicate a need for studies to improve the soft skills of pre-service teachers as they are expected to become role models to their future students and thus should be competent in initiating and maintaining interaction with other people, negotiating conflicts especially among students, leading groups, working hard, and fulfilling their other responsibilities.

Based on the current findings and the existing literature, the researchers strongly recommend that the requirements for teacher training programmes should be extended to evaluate the social and interactional competences as well as psychological resilience of applicants. In that regard, Bozgün and Pekdoğan (2018) underline the necessity of more comprehensible tests to recruit students into these programmes. In addition, the factors that might have decreased the pre-service teachers’ confidence in certain points could be explored through well-structured interviews to be held with the participants who display lower soft skills. Subsequently, events such as seminars and conferences could be organised to overcome any factors deemed to impede the development of their soft skills. For instance, seminars could be regularly held by experts with in-depth specialisation in educational psychology whereby they could provide the pre-service teachers guidance to improve their soft skills. In addition, the pre-service teachers’ academic social skills could be improved through student orientation seminars held at the beginning of each academic year to inform them about their rights and responsibilities in higher education (e.g., carrying out instructions, avoiding undue absences, timely completion of the assigned tasks, and bringing the required materials to school). Furthermore, the
current teacher training curricula should be revised to include more communicative- and practice-based courses that enable students to collaborate with others. In a similar vein, instructors are recommended to increase in-class interaction through pair-work and group-work activities, to encourage the students to participate in extracurricular school activities (e.g., social responsibility projects), to assign students responsibilities based on their interests and competences, to increase student self-awareness, and to create non-threatening learning environments to reduce anxiety and increase motivation. Likewise, as noted by Kara and Çam (2007) who previously reported that using creative drama improved the prospective teachers’ collaborative and self-control skills and enabled them to initiate and maintain interaction with others, its use might be suggested during classes as long as it serves the instructional goals and objectives. Lastly, de Paniza’s (2019) suggestion could be extended to integrate a course designed to improve soft skills into the higher education curriculum, particularly in teacher training programmes.

This particular study is confined to the investigation of soft skills of a limited number of pre-service teachers attending teacher training programmes at state universities in Turkey. It is also confined to analysis of data obtained through the Soft Skills Survey adapted from the Brookings Soft Skills Report Card (Whitehurst, 2016). Further studies might be conducted with a larger sampling to investigate their soft skills using other data collection tools such as structured or semi-structured interviews whereby the participants’ views could be analysed through content analysis to gain a deeper insight into the concern. Similarly, soft skills of the pre-service teachers attending state and private universities could be investigated in a further comparative research to see whether they significantly differ. Alternatively, in-service and pre-service teachers’ soft skills might be compared to see whether and how real teaching practices affect the development of these skills.

REFERENCES


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The Effect of Techno-Pedagogically Designed 5E Learning Model on Student Success and Attitude toward Turkish Class*

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Abstract

The aim of this study is to examine the effect of the 5E learning model designed in accordance with a techno pedagogical lesson plan on student success and attitude in a Turkish course. The research is quantitative and uses a quasi-experimental model with pre-test/post-test control groups. The universe of this study consisted of 8th grade students studying in the Onikişubat district of the province of Kahramanmaraş in the 2019-2020 academic year. The sample of the study consisted of 110 students studying in four different classes from within this same population.

The lessons in the experimental group were taught using a 5E learning model designed in accordance with a techno pedagogical lesson plan, while the lessons in the control group were based on the methods described by the Turkish lesson curriculum. In this study, the "Attitude Scale Towards Turkish Lessons" (ASTTL) and "Turkish Course Academic Achievement Test" (TCAAT) were used as data collection tools. In the analysis of the data obtained in the study, the independent sample t-test and the correlated sample t-test were used. As a result of the research, a statistically significant difference was found in favor of the experimental group between the average achievement scores of the students in the experimental group and those of the students in the control group. However, a statistically significant difference was not found between the average attitude scores of the experimental group versus the control group.

Keywords: Techno Pedagogic Lesson Plan, 5E Learning Model, Academic Success, Attitude

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INTRODUCTION

Today, developments in science and technology have deeply affected the field of education and have caused a multifaceted change and transformation that is known as the digital revolution in education (Parlak, 2017). Interactive technological tools have been used in education and training from the Web 1.0 period (also known as the monoweb) up to Web 5.0.

With the use of technology in education, a new learning culture in which digital learning objects come to the fore has been formed (Yaman, Demirtaş, & İleri Aydemir, 2013). In this context, information and communication technologies (ICT) have also been integrated into the educational environment in Turkey (Ersoy, Kabakçı Yurdakul & Ceyhan, 2016). As a result, technology has started to be used in education by integrating it with learning processes, content, and pedagogy rather than being used solely as a material, and this has brought forth the concept of "techno pedagogical education" (Argon, İsmetoğlu, & Yılmaz, 2015). Techno pedagogical education is defined as the implementation of all stages of the teaching process from planning and execution to the evaluation of teaching through the use of technological pedagogical content knowledge with the intention of increasing the effectiveness of teaching practices (Kabakçı Yurdakul & Odabaşi, 2013: 55). The complex roles and interactions of content, pedagogy, and technology, which are the three main components of learning environments today, need to be determined (Mishra & Koehler, 2006). Components of techno pedagogical education as they are understood today are presented in Figure 1.

![Figure 1: Technological, Pedagogical, and Content Knowledge (TPACK) Model Source(s): www.tpack.org, 2020](image_url)

In 2006, a radical change was made in the Turkish education system, shifting from teacher-centered to student-centered education and from a traditional approach to one that is more constructivist (MoNE, 2006). In the 2006 Primary Education Turkish Lesson Curriculum, for the first time, skills such as correct and effective use of Turkish, critical thinking, creative thinking, communication, problem solving, research, decision-making skills, as well as the ability to use information technologies were included among the basic skills. In addition, the general competencies of the Turkish education system were included in the syllabus, and it was emphasized that the digital competence would also be a requirement for Turkish lessons. The same approach was followed in the Turkish Language Teaching Program, which was put into practice in 2019 by the Ministry of National Education (MoNE). It was stated that digital competence, including the use of Information and Communication Technologies (ICT) with a critical approach, is indispensable for business, daily life,
and communication (MoNE, 2019). Under the learning-teaching approach of the program, it was emphasized that the use of ICTs in learning environments would support student learning by enriching the teaching strategies of the teachers. For this reason, it was recommended to use ICTs in all learning processes. In the program, students are encouraged to collect and organize data in the digital environment and to present their results in the classroom environment. In addition, the MoNE states that teachers should include digital materials in the learning and teaching process with the expression “Visual communication tools should be included in the course and applications; slide, computer, television, interactive board, internet, EBA contents etc. should be used effectively” (MoNE, 2019a).

Thanks to the possibilities offered by technology, classical course tools such as books, notebooks, and chalkboards have become insufficient in the learning and teaching process, and new technologies have now become a necessity in the educational environment (Aslan & Kuşçu, 2018). Thanks to features such as distribution, presentation, storage, ability to access information, and the ability to analyze and evaluate information, digital materials have come to the fore in the learning and teaching process (Mercan, Filiz, Göçer, & Özsoy, 2009). In this context, the Turkish project known as the Movement to Increase Opportunities and Technology (FATİH) aimed to provide educational technology materials to schools and brought a new dimension to the long term digital transformation in education (Benzer, 2019). The General Directorate of Innovation and Technologies of the Ministry of National Education designed the Education Information Network (EBA) as an education platform with e-content in order to use information, technology equipment, and digital education materials in schools within the scope of the FATİH project and made it available to education stakeholders (Argon et al., 2015). When all these developments are taken into consideration, it can be concluded that there are important studies on the use of technology and digital content design in the Turkish education system.

The methods and educational materials chosen in the learning-teaching processes inspire a desire to learn within the learner, and the use of technology in education creates a variety in methods and materials (Güven & Karataş, 2005). In this context, teachers use the 5E learning model envisaged by the constructivist education model by integrating technology with students, enabling students to contribute to their development as individuals who can recognize problems and find different solutions to them, think analytically, recognize and use technology actively, and research (Gül, 2011). In addition, educational technologies employed in educational processes along with contemporary methods can reduce personal differences in learning (Kırkkılıç & Şahin, 2007), and enable digital learning culture to be settled (Yaman et al, 2013).

It is necessary to design learning processes using technology in educational environments, to make electronic evaluations, to develop e-materials by using educational software and web resources effectively, and to put them into practice in line with a techno pedagogical lesson plan (MoNE, 2018). However, the practice in Turkey is different as Turkish grammar is taught using a behavioral approach which includes linguistic rules and the teaching of each subject with limited examples within a frame, all of which make Turkish lessons monotonous for learners (Güneş, 2013). This is reflected as failures in Turkish courses in Turkey due to the negative experiences. The most important indicators of this are the low Turkish course scores of students in central exams. According to the preliminary results report of OECD PISA (International Student Assessment Project) in 2018, student reading skill is calculated as 466.37 in Turkey (MoNE, 2019b), while the average score for OECD countries in this skill is 487. Turkey ranks 40th in the field of reading skills among 79 countries who participated in PISA 2018, it ranks 31 among the 37 OECD countries.

As is clear from the report, Turkey is situated in the last five among OECD countries in the area of reading skill indicating that is it statistically below the OECD average (ERG, 2020). Since the way to be successful in education is through effective Turkish education (Yılmaz, 2015), Turkish is taught as a compulsory course at every stage of education from primary school to university (Erçapan, 2018). Considering that Turkish takes place at all levels of education, that success in Turkish also affects academic success in other lessons (Yılmaz, 2015), and that student success in Turkish is low
(ERG, 2020; MoNE, 2019c), research is needed related to how students can develop a positive attitude towards the lesson. In addition, according to the learning-teaching approach of the Turkish Lesson Curriculum put into practice in 2019, using ICTs as much as possible in the learning process, as well as using slides, computers, televisions, interactive whiteboards, the internet, and EBA effectively in the course and applications was recommended (MoNE, 2019a). However, information on how to organize lessons or activities related to this situation remain limited. Considering all these situations, this study specifically aims to discover whether there is a statistically significant difference between the mean scores of the Turkish Course Academic Achievement Test (TCAAT) and the Attitude Scale Towards Turkish Lessons (ASTTL) of 8th grade students studying the subject of “Elements of the Sentence” in Turkish lessons using either the method described by the Turkish curriculum or the 5E learning model designed in accordance with a techno pedagogical lesson plan.

**METHOD**

**Research Design**

The research is quantitative in nature and uses a quasi-experimental model with pre-test/post-test control groups. The quasi-experimental model is used especially in social science research when the controls required by real trial models cannot be achieved (Karasar, 2012). In the experimental research, the researcher applies comparable procedures and then examines their effects (Büyüköztürk, Kılıç Çakmak, Akgün, Karadeniz, & Demirel, 2018).

**Universe and sample**

The universe of the study consisted of 8th grade students studying in the Onikişubat district of the Kahramanmaraş province in the 2019-2020 academic year. The sample of the study consisted of 110 students studying in four different classes from within the same population. The lessons in the experimental group were taught with a 5E learning model designed in accordance with a techno pedagogical lesson plan, while the lessons in the control group were based on the methods described by the Turkish lesson curriculum.

**The Role of the Researcher**

The researcher attended the following courses organized by the Ministry of National Education: FATİH Project Interactive Classroom Management Course, FATİH Project Lesson Flow Design Course, FATİH Project Conscious and Safe Use of IT and the Internet Course, FATİH Project Technology Supported Literature Turkish Instructor Training Course, and FATİH Project EBA V Class Courses. The researcher is an expert in preparing techno pedagogical lesson plan activities. The researcher has 17 years of professional experience and works as a teacher for the MoNE. The researcher also has experience in teaching using methods defined by the Turkish course curriculum, as in the control group lessons.

**Research Process**

The lessons in the experimental group of this research were taught within the scope of a 5E learning model designed in accordance with a techno pedagogical lesson plan on "Elements of the Sentence". In the control group, a Turkish lesson on the same subject was taught using the method described by the Turkish national curriculum. Before teaching the lesson, the TCAAT and ASTTL were administered to students in both the experimental and control groups as a pre-test to determine the effectiveness of the lesson application. The lesson for each group was carried out in the following order:

**Defining the Aim:** Objectives related to the subject to be learned and student achievements taken from the Turkish education program were clearly conveyed to the students.
Preparation of Teaching Tools and Materials: The researcher prepared a lesson plan in accordance with the 5E learning model, designed in accordance with the techno pedagogical lesson plan to be used in the experimental group, taking into consideration the outcomes of "Elements of the Sentence" and the plan format shown by the Ministry of National Education YEĞİTEK Education Services Coordination. In the control group, a plan was prepared according to the program defined by the Turkish Course Teaching Program. At the same time, the teaching materials to be used in the lessons were created in accordance with the lesson plan.

Application: The activities to be carried out and the materials to be used within the scope of the 5E learning model were introduced to the students in the experimental group at the beginning of the course. Students who did not have an EBA password were provided with one through the MoNE Education Information Network (EBA) system. A wall related to the elements of the sentence was created using the Padlet application. The contents developed by the researcher using various WEB 2.0 tools were put into practice within the scope of the lesson plan. Interactive boards, EBA, and other educational digital learning platforms (private and official) were actively used in the process. Educational material in digital format was sent via EBA for the students to review the lesson subject at home.

The implementation of the 5E learning model designed in accordance with the techno pedagogical lesson plan was carried out as follows, based on the interactive classroom management education lesson preparation instruction developed by MoNE YEĞİTEK:

![Diagram](image)

Figure 2. The Process Scheme of the Lesson in the Experimental Group

Evaluation: At the conclusion of all activities, an evaluation of the course was carried out using technological tools.

In the control group, the lessons were taught without any intervention to the students. Purpose, content, learning-teaching process, and evaluation were carried out using the method defined by the Turkish course curriculum.

The application was carried out in both groups on the 8th grade Turkish lesson "Elements of the Sentence" over 7 weeks and 8 lesson hours. The TCAAT and ASTTL were re-administered as a post-test to students in both groups to determine the effectiveness of the application immediately after the application was completed.
Data Collection Tools

The "Turkish Course Academic Achievement Test" (TCAAT) and the "Attitude Scale Towards Turkish Lessons" (ASTTL) were used as data collection tools in the study.

Turkish Course Academic Achievement Test

The TCAAT consists of 20 multiple choice questions and was developed by the researcher. TCAAT student outcomes were prepared considering the MoNE 2019 8th grade Turkish Course Curriculum. To prepare this test, questions were used from the Outcome Comprehension Tests on the subject (“Elements of the Sentence”) as prepared by the MoNE General Directorate of Measurement, Assessment, and Exam Services between 2013 and 2017 to be used by 8th graders in Support and Training Courses. The purpose for choosing questions from these Outcome Comprehension Test was that they include standardized questions and are used throughout the country. The Outcome Comprehension Tests were copied and given to two field experts working at the same school as the researcher and who had taught the 8th grade in the previous academic year. The experts were asked to choose 25 questions from among 61 questions. The researcher, who is also a field expert, also chose 25 questions and a draft of the 20-question Achievement Test was created together with the two field experts.

In order to ensure the content and appearance validity of the test, the Achievement Test draft was presented to the experts again and the test was finalized in line with the expert opinion. According to Büyüköztürk (2018: 180-181), content validity indicates the adequacy of the test items of a test in evaluating the behavior to be measured, while appearance validity refers to the validity of factors such as the name, questions, and order of the test, and both validity types can be evaluated with expert opinion.

In order to calculate the reliability of the Turkish Course Academic Achievement Test, the internal consistency methods KR-20, KR-21 and Cronbach Alpha methods were utilized. Due to the fact that the subject whose outcomes to be measured had not been covered in the school in previous years, the 8th grade students who were educated at the school in the previous academic year went to different higher education institutions as graduates, and these schools contain heterogeneous groups, the curriculum of the control and experimental group classes and the other existing classes work on the same timetable, the decision was made to calculate the reliability of the test using the Cronbach Alpha coefficient instead of KR-20 and KR-21.

According to Bademci (2011), the general acceptance of the Cronbach Alpha coefficient for use in weighted measured items only is incorrect, as it can be used for the reliability of measurements for items with bivalent (0-1) values. In this case, the reliability results of the measurements obtained from a two-value measured test will give results identical to the KR-20. Özmen (2014: 70-72) determined the reliability of the multiple-choice test with a Cronbach Alpha value of 0.83 and stated that the test was reliable. In the literature, there are studies in which the Cronbach Alpha internal consistency coefficient is used in the calculation of reliability in experimentally designed studies conducted (Gürbüz & Engin, 2014). The Cronbach Alpha reliability coefficient of the Turkish Course Academic Achievement Test developed by the researcher was calculated and determined as 0.72. According to Yılmaz and Sünbül (2009), the Cronbach Alpha has a coefficient value between 0 and 1 and the closer this number is to 1, the higher the reliability of the scale. Büyüköztürk (2018: 183) also stated that a reliability coefficient of 0.70 and above is generally sufficient for reliability.

Attitude Scale Towards Turkish Lessons

In this study, the validity and reliability of the "Attitude Scale Towards Turkish Lessons" (ASTTL) developed by Topçuğlu Ünal and Kaya (2014) was used. In the internal consistency study conducted by the researchers who developed the scale, the Cronbach Alpha Internal Consistency
coefficient was found to be 0.915. In this case, it is possible to say that the items that make up the scale are consistent with each other and reflect the attitude they want to measure (Topçuoğlu Ünal & Kaya, 2014). In the reliability study conducted in this research, the Cronbach Alpha internal reliability coefficient of the scale was calculated as 0.888. The scale consists of a total of 27 items, 19 of which are positive and 8 negative. The scale items were rated using a 5-point Likert as strongly disagree (1), disagree (2), undecided (3), agree (4), completely agree (5). All items (6, 13, 18, 25, 30, 35, 38, 40) in the negative attitudes towards the lesson dimension of the Turkish course attitude scale were analyzed by reverse coding because they contain negative judgments.

Data Analysis

The TCAAT and ASTTL were administered as pre-test and post-test to a total of 110 students, including the experimental and control groups. The data obtained were analyzed using the SPSS 22 package program. The mean, standard deviation, and frequency values of the groups were analyzed using descriptive statistics. In order to check whether there was a statistically significant difference between the pre-test and post-test scores of the experimental and control groups, an independent sample t-test was conducted. The normality of the groups required for the t test was tested and it was found to be normal.

Ethics Committee Permission

Data collection tools were presented to the Kahramanmaraş Sütçü İmam University Ethics Committee and it was decided that the study was in accordance with research and publication ethics (Rectorate of Kahramanmaraş Sütçü İmam University Social and Humanities Ethics Committee, E50052, December 12, 2019).

FINDINGS

In this section, the findings obtained from the research are given in order according to the aims of the research.

Findings Regarding the TCAAT Levels of 8th Grade Students According to the Method Variable Used

Pre-TCAAT was applied to both groups before starting the application in order to check the equality of prior knowledge in both groups of students related to “Elements of the Sentence”. Before analysis, the data were tested to ensure they were suitable for parametric tests. Independent groups t-test results for the analysis of the scores the students achieved on the Pre-TCAAT are given in Table 1.

<table>
<thead>
<tr>
<th>Groups</th>
<th>Independent variable/Method</th>
<th>Dependent variable/Test</th>
<th>N</th>
<th>( \bar{X} )</th>
<th>Ss</th>
<th>Sd</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental group</td>
<td>5E Learning Model Suitable for Techno Pedagogical Lesson Plan</td>
<td>Pre-TCAAT</td>
<td>56</td>
<td>5.01</td>
<td>1.93</td>
<td>108</td>
<td>-1.23</td>
<td>0.219</td>
</tr>
<tr>
<td>Control Group</td>
<td>The Method Defined by the Turkish Course Curriculum</td>
<td>Pre-TCAAT</td>
<td>54</td>
<td>4.57</td>
<td>1.19</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As indicated by Table 1, the average of the Pre-TCAAT scores of the students in the experimental group is 5.01 and standard deviation is 1.93, while the average of the Pre-TCAAT scores of the students in the control group is 4.57 and standard deviation is 1.19 however, no significant difference was found between the achievement levels of the students \( t \) (108) = -1.23, \( p > .05 \). Since there is no significant difference, it can be said that the preliminary knowledge of both groups about
the subject matter is similar. To see the effect of the independent variable, it is sufficient to look at the post-tests performed after the application of both groups.

Table 2. Independent Samples t-Test Results Related to the Post-TCAAT Scores of Students in the Experimental and Control Groups

<table>
<thead>
<tr>
<th>Groups</th>
<th>Independent Variable/Method</th>
<th>Dependent Variable /Test</th>
<th>N</th>
<th>$\bar{X}$</th>
<th>$S_s$</th>
<th>$S_d$</th>
<th>$t$</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>5E Learning Model Suitable for Techno Pedagogical Lesson Plan</td>
<td>Post-TCAAT</td>
<td>56</td>
<td>9.25</td>
<td>4.19</td>
<td>108</td>
<td>-4.62</td>
<td>0.000</td>
</tr>
<tr>
<td>Control</td>
<td>The Method Defined by the Turkish Course Curriculum</td>
<td>Post-TCAAT</td>
<td>54</td>
<td>6.17</td>
<td>2.65</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As shown in Table 2, the average of the Post-TCAAT scores of the students in the experimental group is 9.25, while the average of the Post-TCAAT scores of the students in the control group is 6.17, with a standard deviation of 2.65.

In this case, the independent groups t-test indicated a significant difference between the achievement levels of the students. This difference is in favor of the experimental group in which the 5E learning model designed in accordance with the techno pedagogical lesson plan was applied ($t (108) = -4.62, p <0.05$). It can be concluded that the 5E learning model was more effective than the methods defined by the Turkish course curriculum in increasing the success of the course.

Table 3. The Related Samples of t-Test Results of the Mean of Pre-TCAAT and Post-TCAAT Scores of the Students in the Control Group

<table>
<thead>
<tr>
<th>Group</th>
<th>Method Defined by the Turkish Course Curriculum</th>
<th>Test</th>
<th>N</th>
<th>$\bar{X}$</th>
<th>$S_s$</th>
<th>$S_d$</th>
<th>$t$</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>The Method Defined by the Turkish Course Curriculum</td>
<td>Pre-TCAAT</td>
<td>54</td>
<td>4.57</td>
<td>1.81</td>
<td>107</td>
<td>-3.63</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Post-TCAAT</td>
<td>54</td>
<td>6.16</td>
<td>2.65</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3 illustrates that the pre-TCAAT average of the students in the control group is 4.57 with a standard deviation of 1.81, while the post-TCAAT average score is 6.16 with a standard deviation of 2.65. As a result of the related sample t-test, there is a statistically significant difference between the mean scores of the students’ pre-test and post-test with $p = 0.00$. This difference is in favor of post-tests ($t (107): -3.63, p <0.05$). The Turkish course academic achievement of the students in the control group significantly changed after the method prescribed by the Turkish Course Curriculum was applied.

Table 4. The Related Samples of t-Test Results of the Experimental Group Students' Pre- and Post-TCAAT Scores Mean

<table>
<thead>
<tr>
<th>Group</th>
<th>Method Defined for Techno Pedagogical Lesson Plan</th>
<th>Test</th>
<th>N</th>
<th>$\bar{X}$</th>
<th>$S_s$</th>
<th>$S_d$</th>
<th>$t$</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>5E Learning Model Suitable for Techno Pedagogical Lesson Plan</td>
<td>Pre-TCAAT</td>
<td>56</td>
<td>5.01</td>
<td>1.93</td>
<td>111</td>
<td>-6.85</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Post-TCAAT</td>
<td>56</td>
<td>9.25</td>
<td>4.19</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As seen in Table 4, the average of the Pre-TCAAT of the students in the experimental group is 5.01 with a standard deviation of 1.93, while the Post-TCAAT average is 9.25 with a standard deviation of 4.19. There is a statistically significant difference between the pre-test and post-test mean scores of the students since $p = 0.00$ ($t (111): -6.85, p <0.05$). The success points of the students in the experimental group in the Turkish lesson changed in a positive way after applying the 5E learning model designed in accordance with the techno pedagogical lesson plan.

In increasing the success of Turkish lessons, both the 5E learning model designed applied in the experimental group and the method defined by the Turkish lesson teaching program in the control
group significantly increased the success of Turkish lessons in a positive way. When the experimental and control groups are compared, there was a significant difference in favor of the experimental group in increasing the success of Turkish lessons.

Findings Regarding the Turkish Course Attitude Levels of 8th Grade Students According to the Method Variable Used

In order to determine the attitude levels of the students in the experimental and control groups towards the Turkish course, the ASTTL was administered to both groups before starting the application. Before analysis, the data were tested to ensure they were suitable for parametric tests. The results of the independent groups t-test conducted for the analysis of the scores the students achieved on the pre-ASTTL are given in Table 5.

Table 5. Independent Groups t-Test Results Related to Pre-ASTTL Scores of Students in Experimental and Control Groups

<table>
<thead>
<tr>
<th>Groups</th>
<th>Independent Variable/Method</th>
<th>Dependent Variable/Test</th>
<th>N</th>
<th>X</th>
<th>Ss</th>
<th>Sd</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>5E Learning Model</td>
<td>Pre-ASTTL</td>
<td>56</td>
<td>102.17</td>
<td>16.37</td>
<td>108</td>
<td>-0.958</td>
<td>0.340</td>
</tr>
<tr>
<td>Group</td>
<td>Suitable for Techno Pedagogical Lesson Plan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>The Method Defined by the Turkish Language Curriculum</td>
<td>Pre-ASTTL</td>
<td>54</td>
<td>98.68</td>
<td>21.62</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5 demonstrates that the average of the pre-ASTTL scores of the students in the experimental group is 102.17 with a standard deviation of 16.37, while the standard deviation of the pre-ASTTL scores of the students in the control group is 21.62. No significant difference was found between the attitude levels of the students. (t (108) = -.958, p > .05), thus it can be concluded that the attitude levels of both groups towards Turkish lessons are similar. To see the effect of the independent variable, it is sufficient to look at the post-tests performed after the application of both groups.

Table 6. Independent Samples t-Test Results Related to Post-ASTTL Scores of Students in Experimental and Control Groups

<table>
<thead>
<tr>
<th>Groups</th>
<th>Independent Variable/Method</th>
<th>Dependent Variable/Test</th>
<th>N</th>
<th>X</th>
<th>S</th>
<th>Sd</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>5E Learning Model</td>
<td>Post-ASTTL</td>
<td>56</td>
<td>103.64</td>
<td>13.92</td>
<td>108</td>
<td>-0.420</td>
<td>0.676</td>
</tr>
<tr>
<td>Group</td>
<td>Suitable for Techno Pedagogical Lesson Plan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>The Method Defined by the Turkish Language Curriculum</td>
<td>Post-ASTTL</td>
<td>54</td>
<td>102.38</td>
<td>17.23</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As Table 6 indicates, the average of the post-ASTTL scores of the students in the experimental group is 103.64 with a standard deviation of 13.92, while the average of the post-ASTTL scores of the students in the control group is 102.38 with a standard deviation of 17.23. No significant difference was found between the attitude levels of the students as a result of the independent groups t-test conducted to determine whether the difference between the mean scores of the students in the experimental and control groups was significant (t (108) = -.420, p > .05). Attitude post-test scores of the students in the experimental and control groups towards Turkish lesson were similar.

DISCUSSION AND CONCLUSION

As a result of the research, it was revealed that the 5E learning model designed in accordance with the techno pedagogical lesson plan applied in the experimental group on the subject of "Elements
of the Sentence” included in the 8th grade Turkish course curriculum was more effective in increasing academic achievement than the methods defined by the Turkish course curriculum applied in the control group. A statistically significant difference was found in favor of the experimental group between the average achievement scores of the students in the experimental group and the average scores of the students in the control group. This result may be due to the technology used actively within the scope of the techno pedagogical lesson plan, as well as the application of the 5E learning model. In addition, integrating both together may make the application more effective and made a positive contribution to the increase of student success. When the literature is examined, there are studies showing that students taught with the 5E learning model are more successful than students taught with the methods defined by the Turkish Language Teaching Program (Bayram, 2015). In addition, Özcan's (2015) examined the effects of animation-supported 5E learning methods on student achievement, attitudes, and opinions towards the lesson in teaching the subject “Declaration and Wish Modes” in 7th grade Turkish lessons and concluded that animation-enriched 5E learning methods had a higher effect on student achievement compared to the current program. This result may be considered normal in the study since the 5E learning model designed in accordance with the techno pedagogical lesson plan combining technology and 5E learning model was applied in the experimental group in this study.

The Turkish lesson success scores of the students in the experimental group increased significantly after applying the 5E learning model. Research in the area of using technology in classroom teaching has shown that it increases the success of the students in the lessons by saving time (Ovalı, 2011), creates a sense of curiosity in students (Özbal, 2017), makes the lessons fun and efficient (Tayfa, 2018), and increases student participation in the lesson (Durukan, 2011; Gezer, 2020; Özipek, 2019). The active use of technology in this study may have led to the increase of student success. In addition, there are studies in the literature that show that teaching with the 5E learning model increases the success of students (Gül, 2011; Kara, 2018; Keskin, 2019). This is an expected result considering that the 5E learning model applied in accordance with the techno pedagogical lesson plan combines technology and 5E learning models while the lessons are being taught in the experimental group. Unlike the present study, Öner's (2015) study investigated the effect of an animation-supported 5E model application on student academic achievement and motivation, and found no significant difference between the pre-test/post-test scores of the experimental group and the pre-test/post-test scores of the experimental and control groups. In addition, while there was a significant difference between the pre-test/post-test scores of the experimental group in the 5E learning model supported by animation in the research of Akaydın (2016), no significant difference was found between the experimental group and the control group in terms of increasing academic success. This may be because the application was not the same. Although the technology used in the 5E learning model was supported by animation, it did not seem appropriate to consider it a technology integration model in education. Since both studies differ in terms of application, it may be accepted that the results are different.

In the present research, there is a statistically significant difference between the average of the pre-TCAAT scores of the students in the control group and the average of the post-TCAAT scores. This difference is in favor of the final tests. The Turkish course academic achievement of the students in the control group significantly changed after the methods described by the Turkish course curriculum were applied. This result of the research can be seen as an expected situation because with the application, student knowledge about the subject increased. There are studies supporting this result of the research in the literature (Bayram, 2015; Durukan, 2011; Özcan, 2015; Urfali Dadandı, 2016; Tayfa, 2018). According to the research of Gezer (2020), it was concluded that teaching in the control group with the methods described by the program did not significantly affect the academic success of the students.

In another result of this study, no statistically significant difference was found between the average attitude scores of the students in the experimental group towards the Turkish course and those of the students in the control group. It was observed that the average attitude scores of the students in
the experimental groups and the control group students were similar. According to this result, it can be said that the application made in both groups had a similar effect on the attitude of the students.

A further result of this research was that there is no statistically significant difference between the average of pre-ASTTL scores of the students in the experimental group and the average of post-ASTTL scores. The Turkish lesson attitude scores of the students in the experimental group did not differ significantly after the 5E learning model designed in accordance with the techno pedagogical lesson plan was applied, thus it can be concluded that the 5E learning model did not significantly affect student attitudes. The reason for this may be that it is difficult for students to change their attitude towards Turkish lessons in a short period of 7 weeks (Tayfa, 2018), and the similarity of life in Turkish lessons before the implementation (Özipek, 2019). Urfalı Dadandı (2016) examined the effect of using electronic textbooks in teaching Turkish on success, self-efficacy, beliefs, and attitude, and while the Turkish attitude score of the experimental group increased compared to the pre-test, this increase was not statistically significant. In contrast to this research, Bayram and Özcan's (2015) 5E learning model (Durukan, 2011; Gezer, 2020; Ovalı, 2011; Özbal, 2017) found that the use of technology significantly increased the attitude score towards Turkish course in the experimental group. The reason for the different results of this research may be due to the application, the sample, the lesson, and the practitioner.

In the present study, no statistically significant difference was found between the average pre-ASTTL scores of the students in the control group and the average post-ASTTL scores. The student attitude towards Turkish lessons in the control group did not differ significantly after applying the methods described by the Turkish lesson curriculum. This may be due to the fact that the students were taught with a similar instructional method before the research began meaning that no application was made to change their attitudes. The attitude levels of the students were found to be high. There are studies supporting this result of the research in the literature (Özipek, 2019; Tayfa, 2018; Urfalı Dadandı, 2016).

Finally, this research revealed that the 5E learning model designed in accordance with a techno pedagogical lesson plan on the subject of "Elements of the Sentence" included in the 8th grade Turkish course curriculum is more effective in increasing academic achievement than the methods described by the Turkish course curriculum. However, it was observed that it was not significantly effective in changing student attitudes towards the Turkish course in a positive way. The following suggestions can be made as a result of this research:

- The 5E learning model designed in accordance with a techno pedagogical lesson plan can be applied in the teaching of other subjects in the Turkish lesson curriculum as well as in subjects from different lessons.
- The effect of the approach used in this study on academic achievement in other courses can be measured.
- This research is limited to a secondary school in the Onikişubat district of the province of Kahramanmaraş. More comprehensive research can be done in terms of sampling.
- By designing a teaching process based on the techno pedagogical lesson plan to be prepared on the basis of different learning models, the results obtained from studies to be conducted can be compared with the results of this research.
- Descriptive analysis may be done about the learning method and learning-teaching processes by taking student opinions.
- In the research, it was concluded that the 5E learning model, which was designed in accordance with a techno pedagogical lesson plan, did not change the attitude of the
students about the "Elements of the Sentence" in the 8th grade Turkish course curriculum. The causes of this result may be studied.

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Abstract

In this study, evaluation of an emergency distance learning model (remote teaching of emergency) is intended to be evaluated according based on the opinions of the in experiences of primary school teacher candidates. The study, designed in a holistic (mixed) model, was conducted at a state university in Turkey. The study group consisted of 152 primary school teacher candidates. The quantitative data collected through the questionnaire developed by the researcher were analyzed with percentage and frequency, and qualitative data were analyzed by descriptive analysis. At the end of the study, it was found that primary school teacher candidates encountered many problems in distance education, the most important of which are the high number of assignments, the insufficient communication with the instructors, the lack of live lessons, the lack of internet connection and computers, and the problems in the distance education system of the university. It was determined that the participants were generally not satisfied with the distance education they received during this period. Based on these results, it was suggested that the assignment should be given less, the consultancy service should be done at a sufficient level, the support for the students with internet and computer problems, and conducting live lessons were suggested.

Keywords: Model of Emergency Remote Teaching, Pandemic, COVID-19, Distance Education, Live Lesson, Primary School Teacher Candidates.

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INTRODUCTION

The COVID-19 coronavirus, which emerged in China in 2019 and spread rapidly all over the world in 2020, has shown its effect in all areas. This pandemic, which started as a health-related problem, also negatively affected education. Many countries have had to close their schools in the spring semester of 2019-2020 the academic year. Turkey also announced on March 16 that they closed the schools until the end of 2019-2020 the academic year.

The solution to a problem of this magnitude, which was experienced for the first time in education, was to continue education through a distance education (DE) model. Yalın defines DE as an educational model that performs learning and teaching activities with the interaction of teachers and students in physically different places using technology (2008). This model is preferred because of its features such as providing equal opportunities in education, putting the student in the center, not being tied to a physical classroom, cost-effective, and time-independent (Sagnak, 2019). Besides, DE can be used in non-formal education (Keegan, 1980). With this model, education opportunities can be offered to people of various ages and at all educational levels.

“It is stated that developments in educational technology will be particularly concentrated in individual learning in the coming years. The students’ freedom to organize and continue their learning initiatives, their own role in evaluating their learning, their active participation in learning, and their ability to progress in learning at their own pace” are the indicators of this (Hızal, 1979: 8). To achieve this, distance education creates great opportunities for students.

Bozkurt and Sharma (2020) stated that distance education applied during the COVID-19 pandemic can be explained with the concept of "Emergency Remote Teaching (ERE)" more clearly. There are many differences between ERT and DE. Because while DE has always flexibility and various alternatives for students, ERT is a teaching model applied out of necessity.

“The main purpose in distance education; to develop education programs that meet the demands of learners in terms of education and training and to present them effectively to as many people as possible” (Özkul & Girginer, 2002: 107). Due to this feature, distance education has been the most used teaching model in this period.

Those who will be educated in DE must have the competence in using whatever tool required the smooth delivery of instruction (Yurdakul, 2010). The knowledge and skills of the people who are delivering the instruction will directly determine the success of this education. Additionally, the attitudes of the people who will receive this education should be positive towards distance education.

Lessons in distance education can be given in two ways: synchronously and asynchronously (Baytekin, 2011; Yelken, 2011). Both one-way or two-way communication is possible in synchronous DE (İşman, 2008). When distance education is conducted synchronously, mutual interaction between teacher and student is possible. When it is asynchronous, students have the opportunity to learn the subject by accessing videos and resources at their convenience whenever they want.

DE is mostly used in universities, but universities need certain software and hardware infrastructure to provide DE in online education form. Besides, they should have computer laboratories and expert staff (Akpınar, 2005), but due to the COVID-19 pandemic in 2020, many universities had to start using this model without these opportunities. On the other hand, it can be said that universities with open education faculties or an active DE center survived this era more easily.

Feedback from users is important for the efficiency and further development of the DE models (Baytekin, 2011). There are numerous studies on DE in the literature, however most of these studies are conducted on DE before the COVID-19 pandemic. In the history of education, there has never been a period of compulsory DE in all school types as in the period of the COVID-19 pandemic. For
this reason, there is a great need for researches on ERT, in which the method and scope of DE widened.

The fact that DE is made on such a large scale and for the first time has caused some problems in the teaching process and the infrastructure. Necessary precautions should be taken quickly so that these problems do not reduce the quality of education. For this reason, it has emerged that studies should be conducted to reveal the views of teachers and students regarding DE. Thus, problems will be identified, and solutions will be scientifically demonstrated. Whether the pandemic continues or not, DE will continue to be carried out in universities. It is also seen that DE is rapidly advancing towards having a greater share in the education of the future. Therefore, there is a great need for research about this period to make DE more qualified.

**AIM OF THE STUDY**

In this study, the view of primary school teacher candidates (PSTC) during the first applications of distance education model in COVID-19 crisis in Turkey are studied. In line with this general aim, the following sub-problems are discussed:

According to the opinions of the PSTC, during the ERT period,

1. How are the possibilities to access the internet?
2. What is the tool they use the most?
3. Which DE tools do they have?
4. How should the lecture be on live lessons?
5. How should student participation in live lessons be?
6. How often should assignments be given?
7. How should measurement and evaluation be done?
8. What is the contribution of the education they were given to their education?
9. What are the problems encountered?
10. What are the suggestions for the solutions to the problems they encounter?

**METHODOLOGY**

This research is a cross-sectional case study, patterned in a holistic (mixed) model, in which both qualitative and quantitative research types are used together. Creswell (2003), Johnson and Onwuegbuzle (2004) stated that quantitative and qualitative methods can be used in the same study if the aims of the study are suitable. According to İşman (2008), one of the models that can be used in the evaluation of DE is the triangulation model. In this model, qualitative and quantitative methods are used together to reach an error-free result. Thus, the scientific validity and reliability of the result to be obtained will increase.

**Study group**

As the study group of this research, students at the primary school teaching department, Faculty of Education, Mersin University were determined. There are 293 students in this department in
the 2019-2020 academic year. All students were planned to be in the study group, but 152 students voluntarily participated in the study. 99 (65%) of the students are female, 53 (35%) are male; 45 (29.6%) 1st year, 36 (23.7%) 2nd year, 40 (26.3%) 3rd year and 31 (20.4%) 4th year students.

Data Collection and Analysis

The data were collected through the "DE Evaluation Questionnaire" developed by the researcher. To check the validity of the questionnaire, three experts were consulted. Two of the experts are assistant professors working in the faculty of education and one is a teacher who is an educator. Relevant studies were reviewed for content validity. To increase the reliability of the study, a pilot was administered to a group of 9 graduate students. In the pilot, the comprehensibility of the questions and their suitability for the purpose were checked. The survey was finalized with the arrangements made at the end of the pre-application. To increase the reliability of qualitative data, direct quotations were made from the expressions of the participants.

Because the researcher gave DE in the spring semester of the 2019-2020 academic year in the department where the research was conducted, the problems faced by the students and himself in the courses formed the basis for writing the research questions. There is a total of 10 questions of various types in the questionnaire. Two of these questions are open-ended questions to collect qualitative data, while others are different types of multiple-choice test questions.

The data were collected in the spring semester of the 2019-2020 academic year after the end of the course period. So that the questionnaire forms can be filled in online, the questions were created with "google form". Ethical permission was obtained for the survey on 26.08.2020 from Mersin University.

Since the findings obtained in the descriptive analysis can be interpreted and presented to the reader more clearly (Yıldırım & Şimşek, 2005), the qualitative data of this study were analyzed with descriptive analysis. To understand what is written for the two open-ended questions in the questionnaire to collect qualitative data, common views were given together. Quantitative data were analyzed by percentage and frequency and visualized with a pie chart.

RESULTS

Internet Access Conditions

In Figure 1, it is seen that 47.4% of the participants stated that they had enough internet during the DE period, 45.4% had internet but it was limited, 7.2% did not have internet. This finding shows that more than half of the PSTC either have insufficient internet or no internet at all.

![Figure 1. Internet Access Conditions](image-url)
The Tool Used the Most

In Figure 2, it is seen that 66.2% of the participants stated that the computer was the most used tool during the DE period and 33.8% of the participants used smartphone the most. This finding shows that the use of computers in DE is predominant.

![Figure 2. The Tool Used the Most](image)

DE Tools

In Figure 3, it is seen that 96.7% of the participants had smartphone; 65.1%, computer and 14.5%, tablet as DE tools. On the other hand, 1.3% stated that they did not have any of them. This finding shows that almost all of the PSTC have at least one DE tool, whereas one-third of the participants do not have a computer.

![Figure 3. DE Tools the Participants Had](image)

Suggestions for Conducting Lessons on Live Broadcast

In Figure 4, while 37.5% of the participants' underlined that there should be live lessons in DE but not every week, occasionally, 34.2% stated that they should not have live lessons and 28.3% highlighted that live lessons should be held every week. This finding shows that there is a difference of opinion among the PSTC about the implementation of distance education live.
Suggestions for Student Participation in Live Lessons

In Figure 5, it is seen that 53.9% of the participants stated that participation in the live lessons at DE should be left optional, and 21.1% stated that it should be mandatory. 25.0% of the participants stated that the lessons should not be held on live broadcasts. This finding shows that more than three-quarters of the PSTC want the live broadcast lecture at DE optional or not to have any live broadcast lessons. Only one-fifth of the participants think that attendance at live classes should be mandatory.

Suggestions for the Frequency of Assignments

In Figure 6, 78.9% of the participants suggested that assignment should be given occasionally in DE, and 15.1% every week. On the other hand, it is seen that 6.0% of the participants stated that no assignment should be given. This finding shows that almost all of the PSTC think that assignment should be given in DE, and approximately four-fifths think that assignment should be given occasionally. The rate of those who said assignment should be given every week and those who said no assignment remained very low.
Figure 6. Suggestions for the Frequency of Assignments

Suggestions on the Way of Performing Assessment and Evaluation

In Figure 7, PSTC suggested that assessment should be done with assignments in DE with 80%, in the form of a classical exam at the faculty with 18.7%, and as an online exam with a camera open with 14.7%. This finding shows that four-fifths of the participants think that assignment should be given instead of the exam.

Figure 7. Suggestions on the Way of Performing Assessment and Evaluation

Contribution of the DE to the Participants Education

In Figure 8, it is seen that 15.1% of the participants gave out 0 of 10 points to the contribution of DE to their education, 13.2% 5, 12.5% 6, 12.5% 2, 9.9% 1, 9.2% 3, 8.6% 8, 7.2% 4, 5.9% 7, 3.3% 9, 2.6% 10 points. This finding shows that the largest group of PSTC thought that DE did not contribute to their education at all, while the smallest group thought that DE contributed fully to their education. While those who evaluate the contribution of DE to their education as low or none constitute two-thirds of the participants, those who evaluate the contribution of DE to their education as high or fully constitute one-third of the participants.
Figure 8. Contribution of the DE the Participants Received to Their Education

Problems Encountered

Participants think that the assignments given during the DE period are very and difficult. “Too much assignment has been done” (K78). “Personally, I spent hours and days on my assignment. Some assignment overlapped ... I had a lot of trouble” (K144). “Short-term heavy homework assigned” (K61). “It would be fine if the assignments were not overlaid, but I did 9 homework in a week. This was very tiring” (K19). “Sometimes assignments requiring materials were included. During the pandemic process, we had difficulties in accessing the materials” (E55). “All the lecturers drowned the students in assignment as if they were entering the assignment race” (E49). It was stated that assignment is higher than the students' level. “Some research assignments were beyond our level and required very detailed research. These were researches that only graduate students could do” (K17). “Our lecturers do not want their duties considering the pandemic period so that they asked us for assignment that we did not tell or did not know at all” (K52). “We did not see the subjects of the assigned assignments during the face-to-face training. It was very difficult to prepare assignment from subjects I did not know” (K20). Some participants thought that assignment had no educational aspect. “Many assignment given by lecturers were not intended to improve us and were not useful” (K12). On the other hand, one participant stated that he was generally satisfied with the assignment practices of the lecturers who attended his classes. “I had problems with the assignments given by a few lecturers, but I think I got through the pandemic period without much trouble because most of the lecturers were more understanding and helped us with the assignments they gave” (K100).

Some had problems communicating with the lecturer of the course. "Some lecturers could not be contacted at all" (P6). “Not getting feedback was the biggest problem I encountered” (E104).

It was stated by some of the participants that there is no lecture at DE. “No lecturer gave a lesson without video or video” (K125). Some participants stated that the courses are conducted only with the slides and pdf documents uploaded to the system. “We did not have enough information… we could not get enough education. The lessons made only with pdf did not mean anything to us… Nobody entered and looked at the downloaded pdf or files” (K113). “Only a few lecturers uploaded a pdf to the system, while other lecturers just asked us to do assignment on subjects we do not know” (K125). “Instructors provide enough notes about the course, slide, etc. they did not send” (K146). “The lecturers' indifference towards the lesson” (K115) was one of the problems mentioned. Likewise, it has been reported that counseling is not done enough. “I had a lack of communication with the consultants. For this reason, there were deficiencies in our assignment” (P3). “I couldn't find enough explanatory. This forced me to find everything by trial and error” (K15).

It was stated by some of the participants that there were no live lectures. “I could not comprehend the lessons sufficiently because our lecturers did not give lessons on live broadcast” (P120). There were some problems with the lessons made on live broadcast. “We could not attend live classes due to technical problems” (K52). “I had a problem attending live broadcast lessons due to the problem with my phone” (K18). “There were occasional problems with Zoom” (K94).
It has been stated that there are various problems in the DE system of the university. “I had difficulty logging into the system” (K53). “We could not send a file larger than 10 MB to the system” (E48). Although there are discussion forums in the DE system of the university, there have been problems in using them. "When we entered the chat system, the system was troublesome. I had to constantly refresh the page to see new posts. Lecturers did not have a live chat site on the university's DE system anyway” (K97).

Various problems have been experienced in measurement and evaluation in DE. One of them has been experienced in the evaluation of assignment. “Our lecturers gave assignment that was never in our best interest and made them miserable for days. Later, they either did not have the assignments delivered or they did not play 5 points between us with the assignments that the students who made copy-paste even though we gave effort and wrote everything ourselves” (K13). “A great injustice has happened” (K112). Giving too much assignment made some students suspect that they were not read or not fairly evaluated. “Assignments were never, ever checked. There were injustices in the grading of assignment” (K115). “Without DE, higher grades would have been obtained” (K123). “Our lecturers could not healthily apply the assignment system. Most of them: I can't read these assignments; I'll give it 80 points. After all, it's neither too high nor too low. The ideal score, he thought ... We had one instructor in particular ... he gave the whole class 80 points as a visa score. In the final, he gave 75 to most people” (K144). It was reported that some lecturers gave grades without giving any assignment or exams during this period. “Some lecturers determined grades without having any exam or assignment” (K6). “I could not understand what some lecturers gave their midterm or final grades based on. They took an assignment from us at the beginning of the term and evaluated that presentation as both a visa and a final” (E150).

There have been some problems with the internet. “Live lessons were consuming too much internet. For this reason, my internet was not enough” (K24). “Internet shortage and lack of computers, inequality of opportunity” (E43). Some of the students residing in places that do not have internet access have experienced problems. “The main problem I had was that I didn't have the internet. Also, I faced a problem like my internet was not able to receive reception because I was not sitting in the center” (K4). “Because I live in the village, I tried to do my assignment due to a lack of network” (E49). The computer was mentioned as one of the biggest shortcomings experienced by the participants. “Since they generally wanted a Word document in all courses, a computer was needed. It was also very difficult because I didn't have it” (K24). “I had to constantly search for a computer somewhere” (K12).

Due to the curfew during the DE period, returning to their families and attending classes from here caused some problems. We were always asked to do something, saying, "He always does his homework at home. However, some of us had problems with the virus in their family ... On the one hand, my family had expectations from me, on the other hand, I had assignment” (K144). Preparing the environment for the live class was a problem because many of us do not have an extra room at home to attend the live class” (K7). Due to the ban, students’ books remained in the city where they studied at the university. “Books were not with me” (K119).

It has been stated that distance education causes some health problems. “There was pain and burning in my eyes due to hours of research and editing on the phone for assignment” (K18). “I experienced serious psychological problems. Especially during the curfew periods” (K144).

Some did not find the DE model suitable. “I couldn't get an education” (E127). “Unfortunately, we could not get training in education” (K125). “Definitely, the process was not good at all” (K144). “This period has not contributed anything to me. I did not learn anything” (E111). “The course contents of this semester could not be understood” (E44). Some students had problems in DE due to their learning habits. “As I am not used to it, it was boring and tiring for me to constantly research and prepare individuals at the desk” (E51). “I cannot focus on the lessons” (E124). “I don't think I get full efficiency from the lessons, but this problem is not caused by lecturers or students.
Because of course, digital education would be less efficient than face-to-face education” (K122). On the other hand, some are satisfied with the lessons given during the DE period. “There was no problem I encountered in DE, I think it was a very simple system” (K99), “Everything was perfect. I wish it was always DE (E118), “I did not encounter a problem, I liked it very much” (K8). “The lessons were efficient, but the conditions were difficult” (K23).

Suggestions for solutions to the encountered problems

Suggestions regarding the method of assigning assignment were expressed. “Assignment should be given for the development of students” (K12). “In some courses, assignment can be presented in a pre-planned plan” (E55). “Studies should be made mostly in the form of articles and abstracts” (E42). “Research assignments related to our education should be given” (K17). It has been suggested to make limitations in giving assignment. “The situation of the students should be taken into consideration in the assignments and there should not be any limitation” (K12). “Most of the lecturers were not trained because they wanted it every week. Therefore, only one assignment should be given for each course” (K24). “I think assignment should not be given every week in DE” (K21) “Assignment should only be given for midterm and final” (K2). “One-week assignment can be given, and the other week feedback can be given about that assignment” (E45). “Instead of assigning different assignments every week, you can give a more comprehensive assignment and the delivery time can be kept longer” (K11). Some participants even suggested that no assignment be given. “Instead of giving assignment, the lesson should be taught on the topic of discussion during the lesson” (E51).

Some participants suggested that distance education should not be conducted at all. “The solution of distance education is formal education” (K25). “This period should either be delayed or given in the summer months” (K57). “It could be compensated” (E37). “It is not really a fair infrastructure, as not everyone has the same conditions everywhere. Either it had to be an education that could reach everyone, or it had to be nothing” (E39).

It was suggested that students who do not have a computer and internet should be supported in this regard. “For students who do not have a computer, a system can be established with non-governmental organizations, YÖK or scholarship institutions and computers can be provided to those students” (E46). “Adequate internet should be provided to students to enter the system” (K9). “Unlimited internet packages can be given to students by the university or YÖK” (E46).

It is proposed to conduct a lecture live. “More live lessons should be done” (K12). “All lecturers can make online courses” (K18). “I would like all lecturers to answer our questions with applications such as Zoom, even once every 2 weeks” (K10). It was recommended by a participant to be required to attend the live class. “Participation in live lessons should not be compulsory” (K7). It is recommended to use other programs instead of the Zoom program, which is frequently used in the lessons conducted with live broadcasts. “Using other video conferencing applications instead of Zoom application in live lessons will be healthier in terms of privacy of personal data” (E55).

Suggestions were made for the development of the DE system of the university. “The system could have been simpler and more understandable” (E46). “A second website needs to be made available to compensate for the density of the DE system” (E55). “A file larger than 10 MB should be able to be uploaded to the DE system of the university” (E48). “The phone application of the system must be produced” (E47). “DE should be made more fun” (K17).

It has been suggested to provide the opportunity to communicate more easily with the lecturers of the courses. “It may be better for our lecturers to create an environment where we can reach them more easily considering that we have questions” (K1). “It would be better if the lesson time was extended and one-on-one communication” (K5).
It has been suggested to provide information on distance education. “In the early days when remote access was started by the lecturers, students could be informed about how the lesson would be processed” (E55). Counseling has been suggested for some courses. “Lecturers on subjects we do not understand should conduct live lectures that week and listen to complaints and comments” (E40). It was suggested that students receive feedback on the internet. “Feedback should be provided more frequently via email or the DE platform” (E41).

**DISCUSSION, CONCLUSION, AND IMPLICATIONS**

Throughout the history of DE, many tools have been used, but in the last period, the teaching contents are mostly shared on the internet. Similarly, students submit their work and assignment online. It is not possible to participate in distance education without the internet. In this study, it was determined that more than half of the participants do not have the internet to use in DE or their internet is insufficient and only half of them have sufficient internet. In the research conducted by İşman, university students reported that internet ownership in DE is a problem (2008).

Two-thirds of the PSTC participating in the study stated the computer as the most frequently used tool in DE, and one third stated the smartphone. In this study, it can be said that the computer stands out as the most used tool since it is easier to follow live lectures in DE, to prepare assignment, and to load the necessary assignments into the system compared to other tools. According to Gülbahar, students should have the necessary tools for success in DE (2012). In this study, it was concluded that almost all of the participants have at least one DE device (computer, tablet, smartphone), but one-third of the participants are the most it is seen that they do not have the computer, which is the tool used. It is important that almost all of the PSTC have a smartphone in terms of attending the live broadcast lessons.

One-third of the participants want their live-broadcast lectures at DE to be occasional, one-third not at all, and about one-third to be every week. It was concluded that more than half of the participants thought that the participation in the live broadcast at DE should be left to the students' request, one-fourth of the lessons should not be live on the live broadcast and about one-fifth of them thought that it should be mandatory. This result shows that there is a difference of opinion among the students about the necessity of attending the course and the live broadcast in DE.

One of the most important responsibilities of the student in DE is assignment (Gülbahar, 2012). It has been determined that almost all of the participants in this research think that assignment should be given in DE. About four-fifths of the participants think that assignment should be given occasionally. The rate of those who say “every week or no assignment” is quite low. Four-fifths of the participants stated that measurement and evaluation should be done with assignment. It has been determined that the rate of those who say it should be in the form of a classical exam or online exam in the faculty is very low. Gülbahar stated that different assessment and evaluation methods should be used in exams (2012). Akpinar suggested that exams should be held in some centers instead of online at home (2005). In this study, it was concluded that the participants should have assignment in the DE, and they wanted this assignment to be accepted in the exam place, but they recommended that the assignment be given occasionally.

While the rate of those who assessed that distance education does not contribute to their education or that it is low constitutes two-thirds of the participants, those who evaluate the contribution of distance education to their education as high or full constitute one-third of the participants. In the study conducted by Keskin and Kaya (2020), they stated that the contribution of the DE that university students received during the pandemic period was very low. This situation can be evaluated as an indication that the students in DE are not very satisfied.

PSTC stated that they encountered various problems in DE. Among these, assigning very difficult and frequent assignment has been mentioned as one of the most intense problems. In addition,
it was stated that in some lessons, there were problems such as passing only assignment, grading without assignment, lack of educational aspect of some assignment or homework evaluation was not fair.

Feedback to the student is very important in DE. Less interaction in lessons conducted over the Internet will cause anxiety in students (Baytekin, 2011). Also, teachers should provide the necessary guidance to students about the use of materials uploaded to the internet in DE (İşman, 2008; Engin, 2013, Uluçay, 2016). In this study, it was determined that the PSTC had difficulties in communicating with the lecturers who attended their classes during the DE period. These participants stated that they could not reach the lecturers and no feedback was given about the lessons. In the studies conducted during the COVID-19 period (Keskin & Kaya, 2020), such problems have been identified as one of the important problems.

In this study, it was concluded that some of the lecturers in DE did not teach at all, and some of them just uploaded documents to the system, that is, they thought that the DE period was almost ignored. Özbay (2015) suggested that teachers should be given content development training to create DE course content to solve this problem. Baytekin stated that using the internet only as an electronic book means that its capacity could not be used sufficiently (2011). This problem may arise from the inexperience and unpreparedness of lecturers in DE due to the rapid spread of the pandemic. Because, in studies conducted in pre-pandemic periods (Uluçay, 2016), students' complaints from lecturers are very low.

Different tools can be used in DE, but teachers should choose the most suitable ones (Yalın, 2008). One of the most frequently used tools in distance education during the pandemic period is programs that allow lessons to be broadcast live. Live broadcast lessons in schools at all levels in Turkey could be made. Higher Education institutions are connected with the universities in Turkey during the pandemic has left in the DE performing live lessons on requests by the lecturer. In this study, the PSTC stated that there were no live broadcasts in many lessons. On the other hand, it was stated that while many programs can be used in live broadcast lectures, lecturers only use the Zoom program. It was determined that many different programs were used in China during this period (Zhou & Li, 2020).

PSTC stated that there is a capacity problem in the DE system of the university, and they have problems logging into the system from time to time. A file larger than 10 MB could not be uploaded to the system. For this reason, the upper limit for student studies to be uploaded to the system by the University is limited to 10 MB. In the study conducted by Kürtüncü and Kurt (2020), it was determined that university students experience the insufficiency of infrastructure in the distance education system.

Assessment on the internet is an important part of this model, but it is unreliable since there is a possibility that someone else will answer the questions instead of the student (Akpınar, 2005). According to the findings of this research, it has been concluded that there are various problems in measurement and evaluation in DE. Some prospective classroom teachers think that the assessment and evaluation of the period in DE are not fair. It is seen that this thought has two sources: unfair grading and the concern that students might cheat. Some participants stated that they felt that the lecturers were not fair in grading. They even stated that some lecturers graded themselves without assigning assignment or exams. Similar concerns have been observed in other university students in Turkey (Kürtüncü & Kurt, 2020).

There is a cost to get an education online. Because of this model, users need a computer, appropriate software, programs, and a connection that can be used through an internet provider. Having them is only possible by paying a certain fee. This will mean that not everyone can access education to be provided on the internet equally (Akpınar, 2005). In this study, some of the PSTC
stated that they do not have computers and the internet to be used in DE, and therefore they have difficulties. Internet usage in Turkey is paid. Because of this fee, some students did not have the internet or had insufficient internet. After April 29, 2020, by YÖK (2020), 6 GB internet support was provided to university students to be used in IE. The research conducted by Bayburtlu (2020) concluded in the result of some of Turkish students don’t have computers. Some participants, on the other hand, stated that they had difficulty following the lessons as they reside in a place that does not have internet access.

It was determined that some of the participants could not find a suitable environment for DE as they resided with their families and could not access their books due to the curfew.

Akpınar stated that in this model, students may experience problems in their musculoskeletal systems since the lessons and studies are carried out on the computer, therefore students should be warned about this issue (2005). In this study, some of the PSTC stated that distance education causes some physical and psychological health problems. In Turkey (Kürtüncü & Kurt, 2020), China (Cao et al., 2020) and in Israel (Savitsky et al., 2020) in research conducted at universities it was concluded that anxiety problems of university students increased during this pandemic period. These results show that the pandemic causes bigger problems than expected.

In this study, some of the PSTC stated that they were not satisfied with the DE model and that distance education could not replace face-to-face education. Some participants stated that the contribution of distance education to their education was low and that it should be compensated instead of DE. However, some participants were found to be satisfied with distance education. This result shows that DE is evaluated differently for each student.

In this study, the participants aimed to solve the problems they experienced in the lessons conducted with DE during the initial period of the COVID-19 pandemic: Less or no homework assignments, instructional assignments if homework is to be given, distant education to be compensated for this period, internet and computers to be given to students in need, live broadcasting of lectures, live broadcast lectures with different programs other than Zoom, the university's DE system to provide information about this system, to facilitate easier communication with lecturers and to provide feedback on their work. As can be seen from these recommendations, the improvements that the participants suggested to be made are generally related to the lecturers and the university's DE system. Bozkurt (2020) also stated that during the pandemic period, schools and teachers in DE have great jobs. In the study conducted by Keskin and Kaya (2020), university students recommended that their lecturers regularly broadcast live.

While evaluating these results, it should be taken into consideration that distance education during the pandemic period differs in many respects from distance education in normal conditions, and it is a teaching model and understanding that is encountered for the first time in terms of both teachers and students. Akpınar stated that academics had a dilemma regarding online education (2005). In this model, the teacher should also get used to DE tools and be able to use technology well (Yalın, 2008). While planning education, it should be taken into account that the main topics related to learning and teaching have changed during the pandemic period (Zhou & Li, 2020), and it is necessary to eliminate the technological infrastructure deficiencies of the schools that will provide this education and to increase the knowledge and skills of the lecturers. According to Andoh et al. (2020), distance education institutions should follow technology closely.

Based on the research results, the following recommendations have been developed:

- ERT courses should be recorded with video so that they are always available on the internet.
- In ERT, it should be ensured that a part of each lesson is broadcast live.
• Measurement and evaluation in ERT should be done with online exams and additional tasks.

• Necessary precautions should be taken for all students to have computers and the internet.

• A coordination unit should be established for each department in education faculties regarding how lessons, assignments, and exams will be conducted in the ERT period.

• Assignment should be announced to students at the beginning of the semester.

• During the ERT period, students should be provided with full consultancy services.

• Instructors should be trained on how to make measurement and evaluation in ERT.

• When the pandemic ends, the blended education model should be made widespread in universities.

• Researches should be made that reveals the problems and solution suggestions faced by the lecturers in the education faculty in ERT.

• Similar studies should be conducted with larger groups of participants.

REFERENCES


Evaluation of Innovativeness’ Status of Teachers

Hüseyin Kocasaraç
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Abstract

This study aims to determine and evaluate the innovative teacher characteristics of teachers working at public-private science and social sciences high schools in Turkey. Science and social sciences high schools were established as educational institutions for students who will be scientists and are expected to be open to innovations, information technologies, learning, development and cooperation. The “Innovative Teacher Characteristics Scale (ITCS)” has been developed to obtain data. This research was carried out using the quantitative method based on the descriptive survey model. 384 teachers working at public-private science and social sciences high schools participated in this study. According to the findings, teachers perceive their being open to innovations, information technologies, learning, development and cooperation to be at a high level in the scope of sub-dimensions of innovative teacher characteristics. The mean scores of the factors show that the innovative teacher characteristics of the teachers differ significantly according to the types of schools (public-private), seniority, foreign language level and branch. On the contrary, they do not differ in terms of gender and education level.

Keywords: Innovation, Innovative Teacher, Innovative Teacher Characteristics.

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INTRODUCTION

In our century where science and technological developments are prevalent, the concept of innovation is used frequently in different fields. Different definitions of the concept of innovation from literature present common features derived from different perspectives. The English word ‘innovation’ is used as “innovasyon”, “yenilik”, “yenilisme”, ve “yenilikcilik” in Turkish. Educators match the concept of innovation with the words, creativity, leadership, originality and entrepreneurship (Aybat, 2016: 164). In this study the concepts of ‘innovation’ and ‘innovativeness’ are preferred.

According to Adair (2008), innovation is to innovate, to put forward or present something new (a new idea, method or device). Rogers (2003) defined the concept of innovation as an idea, practice or object that is perceived as new by an individual, group or society. Birincı (2011: 27), on the other hand, defined innovation as a continuing process for achieving better living conditions, as a difference that can make itself felt in the form of new products, new services, new technologies, new methods and new structures. According to Top (2008: 211-215), innovation is to find new ways of doing things to create new forms, to find better ways to use products and services, and to facilitate more effective use of services and systems. Innovation is making something new for the first time, doing something brand new and putting the inventions into technology. In the light of these definitions, innovation can be described as a process of making a difference by introducing a new idea, a new application, a new process, a new service, a new technology and a new product, and by turning innovations into economic, individual and social benefits.

Innovativeness

The concept of innovativeness is a concept that finds its meaning in different fields in the age of science and technology, where changes and developments occur. Innovativeness is expressed by Glor (2001) as a process in which new ideas are implemented and used. According to Baykara (2014), innovativeness expresses an idea and turning it into a salable, new or improved product, or production of goods and services. Rogers (2003) argues that innovativeness is the degree of early adoption or willingness of the individual and society compared to other individuals and societies. Innovativeness differs from individual to individual based on the reactions of individuals to new things (ideas, products and practices) and their effects on their success and failures (Goldsmith and Foxall, 2003). Innovation can be expressed as a development of a new idea, new application and a new product to be adopted by the individual and society or open to innovation, change and development.

Education and Innovativeness

The individual is the most important factor in the emergence of a new idea, a new application and a new product. In this context, the education of the individual that is responsible for the innovation is also important. Training the individuals who will turn their new ideas, new products and new applications into economic, individual and social benefits are among the goals of education systems. It can be thought that there is a mutual interaction between innovation, innovativeness and education in the process of capacitating individuals for innovation. There is a general idea that education is a prerequisite for innovation and innovation is a prerequisite for innovativeness (Villalba, 2007: 8). In the context of this idea, individuals are trained to produce innovations through education. These individuals produce innovation, and the innovativeness process begins with the use and application of the innovations produced. With the use and implementation of the emerging innovations, the innovativeness process changes and improves education. As seen in Figure 1, there is a mutual interaction between education and innovation.
Through education, individuals produce innovations on the other hand education is influenced by the new ideas, practices and products of individuals. In this context, education prepares the ground for the production of innovations and is affected by the innovations produced, and its interaction with innovativeness continues. There are two reasons why innovativeness is necessary in education. The first is that education has to be reformed and be relevant to a society that is affected by changes in science and technology. The second is for competition of educational institutions with each other. Educational institutions review their programs, learning and teaching environments, teaching principles and methods and technological tools in order to compete, review and respond to the changing expectations of individuals and society (Temizkan, 2014: 6).

The manpower needed by companies and business enterprises are provided by means of education. Universities focus on the quality of the manpower needed by companies and businesses to promote innovation. Universities develop educational programs to ensure that individuals are prepared for individual changing needs. Training of human resources is relevant to producing innovation. Education provides knowledge on the processes of producing innovation. Countries that promote lifelong learning in their education are more equipped to produce innovation. Their citizen are innovative and they tend to produce innovations and new ideas, practices and products by ensuring their professional and personal development is promoted. Economic, social and technological development stops when new ideas, practices and products that affect the economic, social and technological development of countries are not produced (Elçi, 2007: 98; Kurtuluş, 2012; Villalba, 2007: 8).

Innovativeness in education or innovative education is the process of changing educational programs, learning and teaching environments, teaching principles and methods, educational technologies, and human resources qualifications according to the needs of the country, society and
the individual. In such a case, the system educates individuals who are open to change, development, cooperation and communication, who use information technologies, open to innovations, and who can produce new science, art and technology through schools. As educational institutions, schools should be open to change, development and innovation. There is therefore a mutual interaction between innovativeness and school.

**Innovator Teacher**

The success of new practices in education largely depends on the behavior and understanding of the teacher. In our society where rapid changes are experienced, teachers are affected by these changes. Teachers who have an important role in education in order to meet the changing expectations of the individual and the society and keep up with the changes must be open to innovations, information technologies, development and cooperation, learning and innovative behaviors. Teachers need to have innovative behaviors to raise people who both produce and use innovations. In the context of teachers, innovative behavior can be defined as a process in which new ideas are produced, created, developed, implemented and changed by teachers to evaluate teachers' performance. In other words, innovative behavior is the process of adopting and implementing these ideas by introducing new ideas for products and working methods in the institution worked. Innovative behavior can be directed towards both administrative and technical innovations. Teachers are required to exhibit innovative behaviors for various reasons such as rapid scientific, technological and social changes occurring in the society. The innovative behaviors of teachers directly affect the success of schools (Shi, 2012; Thurlings, Evers & Vermeulen, 2015; Turgut & Begenirbaş, 2016).

The innovative behavior of teachers is necessary for responding to the rapidly changing society, providing a role model for the society in general, and new information and technologies required for innovative behaviors. In this context, school administrators should create suitable environments for teachers to demonstrate their innovative behaviors (Gkorezis, 2015). The search for innovative teachers has been an important agenda item in recent years. The Icelandic Ministry of Education has added innovation to its national curriculum as a new subject. In addition, the Icelandic Ministry of Education organizes trainings for teachers to solve problems arising from educational design, pedagogically and theoretically, for the development of innovative teachers (Shavinina, 2013). The teacher plays an important role in the success of the innovations in education system, otherwise it is difficult for the system to change. Teachers should also participate in deciding on the implementation of innovations in the education system.

Innovative teachers: are teachers who develop themselves in their profession, include student-centered activities, try new approaches and ways of sharing information, provide students 'participation in the lesson with different methods, and change students' habits and gain new skills (Ritchhart, 2004. Akt. Özgür, 2013). An innovative teacher is a creative, passionate person who thinks about others, knowledgeable, motivated and skilled in his profession. The innovative teacher has a desire to reinvent himself in the profession (Bittn-Fnedlander, Dreyfus & Milgrong, 2004; Cumming & Owen, 2001). An innovative teacher is an individual who responds to changing society and individual expectations, is open to innovations, using information technologies, development and cooperation, learning and exhibiting innovative behaviors. The main features of innovative teachers are discussed below.

**Innovator Teacher’s Characteristics**

Teachers who have an innovative understanding and behave innovatively can continue their professional development and ensure their professional performance to improve continuously (Balkar, 2015). Being able to respond to the individual and professional renewal needs of teachers also requires them to have innovative teacher attributes to adapt to their changing roles. Innovative teacher characteristics can be addressed in four dimensions. These dimensions can be expressed as a teacher
open to innovation, a teacher open to information technologies, a teacher open to learning, and a teacher open to development and cooperation.

**The Teacher Open to Innovation**

The rapid changes in science and technology affect our world. More information and technology are produced in the century we are in. Every knowledge and technology produced changes the social structure by showing its effect in every area of life. As a natural result of the change in the social structure, education systems change and continue to change. As an important element of the changing and developing education systems, teachers also need to be open to innovation. Because teachers have an important role in successful changes in education. Teachers are the basic element of the education system that provides socialization and is an effective factor in the beginning of change and innovation (Şen, 2013; Van Der Heijden et al., 2015). The fact that teachers have an important role in the change process of societies increases the importance of being open to changes and innovations.

The teacher should have the skills required by the age, be open to developments and innovations, have a structure where he constantly advances himself and is willing to learn (Altıntaş and Yeşiltepe, 2016). It is also important that the teacher is open to innovations, aware of the skills and knowledge he/she needs, and develops himself/herself as a continuous learning individual. While teachers are constantly improving themselves, they should work in a team with their colleagues and establish good relationships with their students (Güven, 2001). The innovative teacher should consider the individual differences and interests of the students in the learning-teaching process and prepare their students according to the needs of today and the future. Students’ interests and expectations vary within the scope of scientific and technological developments. In this process of change, innovative teachers should encourage their students to make right decisions (Kuran, 2002).

In the information age, teachers should also be open to innovation as a natural result of changes in the educational programs of countries, the development of teaching methods and techniques, and the innovations brought by scientific and technological developments.

**The Teacher Open to Information Technologies**

One of the problems that teachers complain about the most is the difficulties they face in keeping up with the rapidly advancing technology. Teachers must understand that they have to keep up with the rapid change in technology and that schools will force them to change. Hundreds of new softwares, applications and tools are developed every day (Üre, 2002). In the age of information and technology, the scientific, technological, economical and social conditions that shape education systems continue to change. The speed of changing conditions will be felt faster in the future. It is necessary for societies and individuals to take advantage of information and education technologies in order to reach the education service they need at a high quality. Teachers should use educational technologies in learning and teaching environments, closely follow technological developments and use technology effectively as a tool to search for information (Çelikten, Şanal ve Yeni, 2005).

In the information and technology age, teachers have to use information technologies both in the classroom and school environment and in their professional development. In this context, teachers should be open to using information technologies.

**The Teacher Open to Learning**

The information society needs individuals with specialized knowledge and skills, equipped with new and up-to-date information, who can renew themselves, learn to learn, and know where and how they can use the information. Developing information and communication technologies have made it easier for individuals to access innovations and learn continuously (Şen, 2013). In this context,
it becomes evident that the teachers who will train the individuals for the information society should have the same characteristics.

**The Teacher Open to Development and Cooperation**

In line with the economic, scientific and technological developments in the world, the education system is expected to train qualified manpower that will provide the necessary change, development and innovation in social systems (Altıntaş & Yeşiltepe, 2016). A teacher who educates people for changes and developments occurring in social systems needs to develop himself professionally. Professional development for teachers entails pursuing developments, changes and innovations related to his professional life from the first day of his practice. Professional development; is the process of getting the teacher renewed, updated, and to gain the knowledge and skills he/she needs (Hamarat, 2002). Teachers that are open to professional development have innovative teacher characteristics.

Teachers who are successful in their profession are free to collaborate with teachers in their own country and with those from other countries. Such teachers value collaboration, communication, sharing their experiences and knowledge with their colleagues. Collaboration with colleagues and sharing opinions on solutions to problems they face as teachers contributes to their professional development (Gökbulut, 2016). Teachers should collaborate with students, colleagues and parents using digital tools and resources (Orhan et al., 2014).

Collaboration of teachers with other teachers can encourage them to be innovative. There is therefore a positive relationship between teachers' collaboration and their innovative teacher characteristics.

It is necessary to be open to innovations, information technologies, learning and development in our era in which scientific and technological developments are experienced by teachers who work in high schools that were established in order to train scientists in science and social sciences. In that respect the research was conducted in science and social sciences high schools. The purpose of this research was to determine the perceptions of teachers working at Public-Private Science and Social Sciences High Schools in terms of innovative teacher characteristics.

It is assumed that determining the status of teachers working at Public-Private Science and Social Sciences High Schools in the context of innovative teacher characteristics will provide important feedback to university and education faculty administrators, program development specialists and teachers, especially in the Ministry of Education (MEB) and Higher Education Institution (HEI). In terms of implementation, the results of the research are expected to shed light on the work done by individuals and institutions regarding the training and professional development of teachers.

**METHOD**

This research aims to determine the perceptions of teachers working at Public-Private Science and Social Sciences High Schools in the context of innovative teacher characteristics. The study was carried out based on the descriptive survey model using the quantitative method. Screening models try to find out the conditions, characteristics and relationship between them, instead of focusing on the causes of events (Creswell, 2005; Kaptan, 1995; Karasar, 1998). Based on this model, a description of the perceptions of teachers in Public-Private science and social sciences high schools in terms of their innovative teacher characteristics were examined. The singular screening model was used in Science and Social Sciences High Schools in order to make a general profile of the teachers in terms of innovative teacher characteristics. In addition, a relational screening model was used to determine whether there is a difference between the innovative teacher characteristics of teachers and their duties in science and social sciences high school. Relational screening model was used to investigate whether
teachers’ innovative teacher characteristics differ from the variables of gender, branch, education level, foreign language knowledge and the level of innovation. Data were collected with the “Innovative Teacher Characteristics Scale (ITCS)”.

Participants

The target population of this research consists of 1036 teachers and 92 administrators working at Public-Private science and social sciences high schools in Ankara, Turkey in the 2016-2017 academic year. The sample consists of 384 teachers working at Public-Private science and social sciences high schools in Ankara in 2016-2017 academic year. The teachers that took part in the research were selected by simple random sampling method. In simple random sampling method, the chance of selecting individuals and objects is equal. In order to get a sample from the universe in this sampling method, the characteristics of the research subject must be equal (Kılıç & Ural, 2013; Aziz, 2014).

Table 1: Distribution of participants (teachers) by socio-demographic characteristics

<table>
<thead>
<tr>
<th>Socio-Demographic Characteristics</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>217</td>
<td>56.5</td>
</tr>
<tr>
<td>Male</td>
<td>167</td>
<td>43.5</td>
</tr>
<tr>
<td>Total</td>
<td>384</td>
<td>100%</td>
</tr>
<tr>
<td>Educational level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undergraduate</td>
<td>259</td>
<td>67.4</td>
</tr>
<tr>
<td>Graduate (Master’s degree)</td>
<td>112</td>
<td>29.2</td>
</tr>
<tr>
<td>Doctorate</td>
<td>13</td>
<td>3.4</td>
</tr>
<tr>
<td>Total</td>
<td>384</td>
<td>100%</td>
</tr>
<tr>
<td>Seniority</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 years and less</td>
<td>37</td>
<td>9.6</td>
</tr>
<tr>
<td>6-10 years</td>
<td>53</td>
<td>13.8</td>
</tr>
<tr>
<td>11-15 years</td>
<td>67</td>
<td>17.4</td>
</tr>
<tr>
<td>16-20 years</td>
<td>100</td>
<td>26.0</td>
</tr>
<tr>
<td>21 years and over</td>
<td>127</td>
<td>33.1</td>
</tr>
<tr>
<td>Total</td>
<td>384</td>
<td>100%</td>
</tr>
<tr>
<td>Foreign language</td>
<td></td>
<td></td>
</tr>
<tr>
<td>German</td>
<td>45</td>
<td>11.7</td>
</tr>
<tr>
<td>Arabic</td>
<td>6</td>
<td>1.6</td>
</tr>
<tr>
<td>French</td>
<td>14</td>
<td>3.6</td>
</tr>
<tr>
<td>English</td>
<td>308</td>
<td>80.2</td>
</tr>
<tr>
<td>Russian</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>Unspecified</td>
<td>10</td>
<td>2.6</td>
</tr>
<tr>
<td>Total</td>
<td>384</td>
<td>100%</td>
</tr>
<tr>
<td>Foreign language level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic</td>
<td>139</td>
<td>36.2</td>
</tr>
<tr>
<td>Intermediate</td>
<td>150</td>
<td>39.1</td>
</tr>
<tr>
<td>Advanced</td>
<td>84</td>
<td>21.9</td>
</tr>
<tr>
<td>Unspecified</td>
<td>11</td>
<td>2.9</td>
</tr>
<tr>
<td>Total</td>
<td>384</td>
<td>100%</td>
</tr>
<tr>
<td>School type 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public</td>
<td>308</td>
<td>80.2</td>
</tr>
<tr>
<td>Private</td>
<td>76</td>
<td>19.8</td>
</tr>
<tr>
<td>Total</td>
<td>384</td>
<td>100%</td>
</tr>
<tr>
<td>School type 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Science</td>
<td>277</td>
<td>72.1</td>
</tr>
<tr>
<td>Social science</td>
<td>107</td>
<td>27.9</td>
</tr>
<tr>
<td>Total</td>
<td>384</td>
<td>100%</td>
</tr>
</tbody>
</table>
FINDINGS

Innovative Teacher Characteristics Level of Teachers

In order to respond to the first sub-problem of the research, descriptive statistics of the total and sub-dimension scores for participants’ innovative teacher characteristics were calculated. The result of the calculation is given in Table 2.

<table>
<thead>
<tr>
<th>Table 2: Descriptive statistics of teachers' innovative teacher characteristics scale (ITCS) and sub-dimensions.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scale / Size</td>
</tr>
<tr>
<td>N</td>
</tr>
<tr>
<td>( \bar{X} )</td>
</tr>
<tr>
<td>( \bar{X} / \text{item number} )</td>
</tr>
<tr>
<td>S</td>
</tr>
<tr>
<td>Median</td>
</tr>
<tr>
<td>Minimum</td>
</tr>
<tr>
<td>Maximum</td>
</tr>
</tbody>
</table>

An analysis of Table 2 shows that the average score of 384 teachers' innovative teacher characteristics scale is 231.26. When this value is divided by the number of items, 53, 4.36 is obtained. According to the previous calculation, this value is above 4.21 and it can be stated that teachers evaluate themselves as highly innovative. The same is true for the first, second and third factors. In the fourth factor, teachers' opinions are at a high level.

Scores Obtained from Teachers' Innovative Teacher Characteristics Scale Difference Status According to the Type of Institution They Work (Public-Private / Science-Social Sciences)

In order to examine the public-private difference, unrelated samples t-test was conducted. The result of the analysis is given in Table 3. When there is a significant difference between the groups after the t-test, Cohen's d values were calculated to determine the effect degree of the difference. Cohen's d value indicates small effect up to 0.2, medium effect up to 0.5, and high effect when above 0.8 (Taspinar, 2016: 66).

Table 3: Independent groups t-test regarding the total average scores of innovative teachers' characteristics according to the type of school (public-private) teachers work at.

<table>
<thead>
<tr>
<th>Scale / Size</th>
<th>School</th>
<th>N</th>
<th>( \bar{X} )</th>
<th>SD</th>
<th>t</th>
<th>p</th>
<th>Impact (d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITC Total</td>
<td>Public</td>
<td>308</td>
<td>229.77</td>
<td>20.01</td>
<td>382</td>
<td>-2.96</td>
<td>0.003*</td>
</tr>
<tr>
<td></td>
<td>Private</td>
<td>76</td>
<td>237.29</td>
<td>19.31</td>
<td>382</td>
<td>-3.03</td>
<td>0.002*</td>
</tr>
<tr>
<td>Teacher open to innovation</td>
<td>Public</td>
<td>286</td>
<td>131.78</td>
<td>10.00</td>
<td>358</td>
<td>-2.40</td>
<td>0.017*</td>
</tr>
<tr>
<td></td>
<td>Private</td>
<td>74</td>
<td>134.86</td>
<td>9.25</td>
<td>358</td>
<td>-2.40</td>
<td>0.017*</td>
</tr>
<tr>
<td>Teacher open to information technologies</td>
<td>Public</td>
<td>286</td>
<td>51.71</td>
<td>5.94</td>
<td>353</td>
<td>-2.26</td>
<td>0.024*</td>
</tr>
<tr>
<td></td>
<td>Private</td>
<td>69</td>
<td>53.49</td>
<td>5.64</td>
<td>353</td>
<td>-2.26</td>
<td>0.024*</td>
</tr>
<tr>
<td>Teacher open to learning</td>
<td>Public</td>
<td>302</td>
<td>25.87</td>
<td>3.02</td>
<td>373</td>
<td>-1.79</td>
<td>0.074</td>
</tr>
<tr>
<td></td>
<td>Private</td>
<td>73</td>
<td>26.58</td>
<td>3.10</td>
<td>373</td>
<td>-1.79</td>
<td>0.074</td>
</tr>
<tr>
<td>Teacher open to development and collaboration</td>
<td>Public</td>
<td>296</td>
<td>21.82</td>
<td>4.46</td>
<td>364</td>
<td>-3.07</td>
<td>0.002*</td>
</tr>
<tr>
<td></td>
<td>Private</td>
<td>70</td>
<td>23.66</td>
<td>4.73</td>
<td>364</td>
<td>-3.07</td>
<td>0.002*</td>
</tr>
</tbody>
</table>

* \( p < 0.05 \) significant
When Table 3 is analyzed, it can be seen that the mean scores of the innovative teacher characteristics of the participants differed according to the type of school (public-private) \((t_{382})= -2.96, p<.05\). In other words, the difference between the participants’ innovative teacher traits scores does not arise from luck and whether they work in Public-Private affects their scores. When the averages are examined, it can be stated that the average scores of teachers working in private schools \((\bar{X} = 237.29)\) are higher than the average of those working in public schools \((\bar{X} = 229.77)\). When the effects of teachers working in Public-Private schools on the characteristics of teachers are examined, it is seen that this effect is moderate \((d = 0.38)\).

Considering the sub-factors, teacher open to innovation \((t_{358})= -2.40, p<.05\), teacher open to information technologies \((t_{353})= -2.26, p<.05\) and teacher open to development and cooperation \((t_{364})= -3.07, p<.05\) mean scores differ significantly according to gender, whereas teacher \((t_{473})= -1.79, p<.05\) mean scores that are open to learning do not differ significantly. The difference is in favor of private school staff for all three groups. Private school staff \((\bar{X} = 134.84)\) for teachers open to innovation, from public employees \((\bar{X} = 131.78)\); Private school workers \((\bar{X} = 53.49)\) for teachers open to information technologies have higher average than public workers \((\bar{X} = 51.71)\) and private school workers \((\bar{X} = 23.66)\) for teachers open to development and collaboration \((\bar{X} = 21.82)\). When the effects of working at Public-Private school on the dimensions of innovative teacher characteristics were examined, it was found that this effect was moderate for all three dimensions, but the greatest effect was for the teacher dimension open to development and collaboration \((d= 0.31)\) for teachers open to innovation; teacher open to information technologies \((d= 0.31)\) for size and \((d= 0.41)\) for teacher size open to development and collaboration).

In order to examine the difference between science and social sciences, unrelated samples t-test was conducted. The result of the analysis is given in Table 4.

### Table 4: Independent groups t-test regarding the total average scores of innovative teacher characteristics according to the type of school (science - social sciences) teachers work at

<table>
<thead>
<tr>
<th>Scale / Size</th>
<th>School</th>
<th>N</th>
<th>(\bar{X})</th>
<th>SS</th>
<th>sd</th>
<th>t</th>
<th>p</th>
<th>Impact (d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITCS Total</td>
<td>Science</td>
<td>277</td>
<td>231.25</td>
<td>19.54</td>
<td>382</td>
<td>0.00</td>
<td>0.997</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Social Sciences</td>
<td>107</td>
<td>231.26</td>
<td>21.49</td>
<td>358</td>
<td>-0.14</td>
<td>0.892</td>
<td>-</td>
</tr>
<tr>
<td>Teacher open to innovation</td>
<td>Science</td>
<td>262</td>
<td>132.37</td>
<td>9.85</td>
<td>358</td>
<td>-0.14</td>
<td>0.892</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Social Sciences</td>
<td>98</td>
<td>132.53</td>
<td>10.14</td>
<td>353</td>
<td>0.23</td>
<td>0.817</td>
<td>-</td>
</tr>
<tr>
<td>Teacher open to information technologies</td>
<td>Science</td>
<td>255</td>
<td>52.10</td>
<td>5.80</td>
<td>295</td>
<td>-0.66</td>
<td>0.507</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Social Sciences</td>
<td>100</td>
<td>51.94</td>
<td>6.24</td>
<td>373</td>
<td>-0.66</td>
<td>0.507</td>
<td>-</td>
</tr>
<tr>
<td>Teacher open to learning</td>
<td>Science</td>
<td>269</td>
<td>25.94</td>
<td>2.95</td>
<td>364</td>
<td>-0.07</td>
<td>0.948</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Social Sciences</td>
<td>106</td>
<td>26.18</td>
<td>3.27</td>
<td>364</td>
<td>-0.07</td>
<td>0.948</td>
<td>-</td>
</tr>
<tr>
<td>Teacher open to development and collaboration</td>
<td>Science</td>
<td>263</td>
<td>22.16</td>
<td>4.92</td>
<td>364</td>
<td>-0.07</td>
<td>0.948</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Social Sciences</td>
<td>103</td>
<td>22.19</td>
<td>4.92</td>
<td>364</td>
<td>-0.07</td>
<td>0.948</td>
<td>-</td>
</tr>
</tbody>
</table>

*p <0.05 significant

When Table 4 is analyzed, it is seen that the mean scores of the innovative teacher characteristics of the participants do not differ significantly according to the type of school (science-social sciences) \((t_{382})= -.00, p>.05\). In other words, the fact that the participants work in science high school or social science high school does not cause any difference in terms of innovative teacher characteristics scores.

In terms of sub-dimensions, it was seen that teachers' work in Science or Social Sciences High Schools did not cause a significant difference. Considering respectively; \(t_{358} = -.14, p>.05\); \(t_{353} = 23, p>.05\); It was calculated that \(t_{473} = -.66, p>.05\) for teacher size open to learning and \(t_{364} = -.07, p>.05\) for teacher size open to development and collaboration.
The Differences of the Scores Obtained from the Innovative Teacher Characteristics Scale of the Teachers According to the Gender of the Teachers

In order to determine the difference of teachers' scores from the innovative teacher characteristics scale according to the gender of the teachers (3rd sub problem a option), unrelated samples t-test and One Way ANOVA to determine the others (b, c, d and e options). The results of the analysis related to the t-test of unrelated samples made to examine the difference by gender are given in Table 5.

Table 5: Independent groups t-test regarding teachers' gender innovative teacher characteristics total score average

<table>
<thead>
<tr>
<th>Scale / Size</th>
<th>School</th>
<th>N</th>
<th>X</th>
<th>SS</th>
<th>sd</th>
<th>t</th>
<th>p</th>
<th>Impact (d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITCS Total</td>
<td>Female</td>
<td>217</td>
<td>232.64</td>
<td>20.21</td>
<td>382</td>
<td>1.54</td>
<td>0.123</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>167</td>
<td>229.46</td>
<td>19.81</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher open to innovation</td>
<td>Female</td>
<td>201</td>
<td>133.76</td>
<td>9.74</td>
<td>358</td>
<td>2.92</td>
<td>0.004*</td>
<td>0.38</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>159</td>
<td>130.72</td>
<td>9.91</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher open to information technologies</td>
<td>Female</td>
<td>203</td>
<td>51.89</td>
<td>6.23</td>
<td>353</td>
<td>-0.61</td>
<td>0.545</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>152</td>
<td>52.28</td>
<td>5.49</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher open to learning</td>
<td>Female</td>
<td>213</td>
<td>26.03</td>
<td>2.96</td>
<td>373</td>
<td>0.17</td>
<td>0.868</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>162</td>
<td>25.98</td>
<td>3.16</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher open to development and collaboration</td>
<td>Female</td>
<td>207</td>
<td>22.46</td>
<td>4.57</td>
<td>364</td>
<td>1.39</td>
<td>0.166</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>159</td>
<td>21.79</td>
<td>4.54</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p <0.05 significant

When Table 5 is analyzed, it is seen that the participants' innovative teacher characteristics score averages do not differ significantly according to their gender (t(382)=1.54, p>.05). In other words, the innovative teacher traits scores of the participants do not change depending on whether they are men or women. When examined according to the sub-dimensions; While factor 1 mean scores differed significantly by gender (t(358)=2.92, p<.05), factor 2 (t(355)=-.61, p>.05), factor 3 (t(373)=.17, p>.05) and factor 4 (t(364)=1.39, p>.05) scores do not differ significantly by gender. When the average of the scores are examined, it is seen that the characteristics / scores ( X̄ = 133.76) of female teachers open to innovation are higher than male teachers ( X̄ = 130.72). The effect of gender on being a teacher open to innovation was found to be moderate (d=0.38).

The Differences of the Scores Obtained from the Innovative Teacher Characteristics Scale of the Teachers According to the Educational Level of the Teachers

Kruskal Wallis H test was conducted to examine whether there are any differences in the innovative teacher characteristics according to the education levels of the teachers. The result of the analysis is given in Table 6.
When Table 6 is analyzed, it is seen that the participants’ innovative teacher characteristics scores do not differ significantly according to their education level ($X^2 (2) = 2.49, p > .05$). Accordingly, innovative teacher characteristics of participants with different educational levels are similar. In other words, the education levels of the participants do not affect the innovative teacher characteristics. The level of education of teachers does not cause a significant difference in terms of all sub-dimensions of the scale ($p > .05$).

The Difference Status of Teachers from the Innovative Teacher Attributes Scale According to their Seniority

One Way ANOVA analysis was performed to examine whether the participants’ innovative teacher characteristics score averages differ according to their seniority. The result of the analysis is given in Table 7.

<table>
<thead>
<tr>
<th>Scale / Size</th>
<th>Source of variance</th>
<th>Squares total</th>
<th>sd</th>
<th>Squares average</th>
<th>F</th>
<th>Anova straight</th>
<th>Difference Scheffe</th>
<th>Impact Size. η²</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITCS Total</td>
<td>Intergroup</td>
<td>4059.54</td>
<td>4</td>
<td>1014.89</td>
<td>2.56</td>
<td>0.038*</td>
<td>2 with 1,3,4,5</td>
<td>0.03</td>
</tr>
<tr>
<td></td>
<td>In-group</td>
<td>150311.45</td>
<td>379</td>
<td>396.60</td>
<td>2.56</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>154370.99</td>
<td>383</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher open to innovation</td>
<td>Intergroup</td>
<td>759.95</td>
<td>4</td>
<td>189.99</td>
<td>1.95</td>
<td>0.101</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>In-group</td>
<td>34557.38</td>
<td>355</td>
<td>97.35</td>
<td>1.95</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>35317.33</td>
<td>359</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher open to information technologies</td>
<td>Intergroup</td>
<td>225.93</td>
<td>4</td>
<td>56.48</td>
<td>1.62</td>
<td>0.168</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>In-group</td>
<td>12170.95</td>
<td>350</td>
<td>34.77</td>
<td>1.62</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>12396.87</td>
<td>354</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher open to learning</td>
<td>Intergroup</td>
<td>57.72</td>
<td>4</td>
<td>14.43</td>
<td>1.57</td>
<td>0.182</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>In-group</td>
<td>3400.27</td>
<td>370</td>
<td>9.19</td>
<td>1.57</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>3457.99</td>
<td>374</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher open to development and collaboration</td>
<td>Intergroup</td>
<td>300.89</td>
<td>4</td>
<td>75.22</td>
<td>3.72</td>
<td>0.006*</td>
<td>1 ile 2</td>
<td>0.57</td>
</tr>
<tr>
<td></td>
<td>In-group</td>
<td>7292.61</td>
<td>361</td>
<td>20.20</td>
<td>3.72</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>7593.50</td>
<td>365</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < 0.05 significant
According to the results of the analysis, the average scores of the teachers regarding innovative teacher characteristics differ significantly according to their seniority duration \(F(4, 383)=2.56, p<.05\). In other words, the innovative teacher characteristics of teachers change significantly depending on their seniority. This finding can also be interpreted as the effect of seniority on teachers’ innovative teacher characteristics. Post-hoc Scheffe test was conducted to determine which groups the difference is between. According to the results of the test, the average score of the senior teachers for 6-10 years \(\bar{X}=224.11\) is significantly lower than the average scores of the other four seniority teachers. There was no significant difference between the average scores of other seniority levels. The eta square \(\eta^2\) value was calculated to investigate the level of influence of professional seniority duration on the participants' innovative teacher characteristics. \(\eta^2\), which takes a value between 0.00 and 1.00, gives the rate of disclosure of the total variance of the independent variable in the dependent variable. 0.01 means low impact, 0.06 medium effect and 0.14 high effect (Taşpınar, 2016: 90). It shows the level of influence of professional seniority duration on the participants’ innovative teacher traits. \(\eta^2=0.03\). Accordingly, the effect of professional seniority period on the participants’ innovative teacher characteristics is moderate.

Considering the sub-dimensions, the mean scores of teachers who are open to development and collaboration differ significantly according to seniority \(F(4, 365)=3.72, p<.05\); Teacher open to innovation \(F(4, 359)=1.95, p>.05\); Teacher open to information technologies \(F(4, 354)=1.62, p>.05\) and teacher open to learning \(F(4, 374)=1.57, p>.05\) mean scores do not differ significantly according to seniority. The level of influence of professional seniority duration on the participants’ innovative teacher traits indicates \(\eta^2=0.57\). Accordingly, the effect of professional seniority period on the teachers who are open to development and collaboration is moderate.

### The Difference Status of Teachers’ Scores from the Innovative Teacher Characteristics Scale According to Foreign Language Knowledge

One Way ANOVA analysis was conducted to compare the mean scores of the innovative teacher characteristics of the participants according to foreign language knowledge. The result of the analysis is given in Table 8.

#### Table 8: Teachers’ innovative teacher characteristics according to foreign language results of one-way variance analysis on total score averages

<table>
<thead>
<tr>
<th>Scale / Size</th>
<th>Source of variance</th>
<th>Squares total</th>
<th>sd</th>
<th>Squares average</th>
<th>F</th>
<th>Anova straight</th>
<th>Difference</th>
<th>Impact Size (\eta^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITC Total</td>
<td>Intergroup</td>
<td>6656.65</td>
<td>2</td>
<td>3328.32</td>
<td>8.54</td>
<td>0.000*</td>
<td>1 with 3</td>
<td>0.04</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>144166.51</td>
<td>370</td>
<td>389.64</td>
<td>2.79</td>
<td>0.063</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Teacher open to innovation</td>
<td>Intergroup</td>
<td>541.39</td>
<td>348</td>
<td>270.69</td>
<td>2.79</td>
<td>0.063</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>33722.30</td>
<td>350</td>
<td>96.90</td>
<td>3.69</td>
<td>0.026*</td>
<td>1 with 3</td>
<td>0.02</td>
</tr>
<tr>
<td>Teacher open to information technologies</td>
<td>Intergroup</td>
<td>256.84</td>
<td>343</td>
<td>128.42</td>
<td>3.69</td>
<td>0.026*</td>
<td>1 with 3</td>
<td>0.02</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>11950.98</td>
<td>345</td>
<td>34.84</td>
<td>2.79</td>
<td>0.063</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Teacher open to learning</td>
<td>Intergroup</td>
<td>87.69</td>
<td>361</td>
<td>43.85</td>
<td>4.85</td>
<td>0.008*</td>
<td>1 with 2</td>
<td>0.59</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>3263.09</td>
<td>363</td>
<td>9.04</td>
<td>4.85</td>
<td>0.008*</td>
<td>1 with 2</td>
<td>0.59</td>
</tr>
<tr>
<td>Teacher open to development and collaboration</td>
<td>Intergroup</td>
<td>900.70</td>
<td>353</td>
<td>450.35</td>
<td>24.35</td>
<td>0.000*</td>
<td>1 with 2,3</td>
<td>0.93</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>6529.86</td>
<td>355</td>
<td>18.50</td>
<td>24.35</td>
<td>0.000*</td>
<td>1 with 2,3</td>
<td>0.93</td>
</tr>
</tbody>
</table>

*\(p<0.05\) significant, Foreign language level: 1 = Basic, 2 = Intermediate, 3 = Advanced.
According to the results of the analysis, the mean scores of the teachers differ significantly according to the level of foreign language \([F(2,372)=8.54, p<.05]\). In other words, teachers' innovative teacher characteristics change significantly depending on foreign language levels. This finding shows that foreign language level has an effect on teachers' innovative teacher characteristics. Scheffe post-hoc test was carried out to determine which groups the difference is between. According to the test results, the average score of teachers with basic foreign language levels (\(\bar{X} = 22.65\)) is lower than the average scores of teachers with advanced foreign language knowledge (\(\bar{X} = 37.61\)). It shows the level of influence of the level of foreign language knowledge on the innovative teacher characteristics of the participants \(\eta^2=0.04\). Accordingly, the effect of the level of foreign language knowledge on the innovative teacher characteristics of the participants is moderate.

Considering the sub-dimensions, teacher open to information technologies \([F(2,345)=3.69, p<.05]\), teacher open to learning \([F(2,363)=4.85, p<.05]\) and teacher open to development and collaboration \([F(2,355)=24.35, p<.05]\) differ significantly according to the level of foreign language, the mean scores of teachers open to innovations do not differ significantly \([F(2,350)=2.79, p>.05]\). Scheffe test was performed to understand between which groups the difference is. According to the test results, the average score of those with advanced foreign language levels (\(\bar{X} = 53.38\)) is higher than the average score of those with basic foreign language levels (\(\bar{X} = 51.12\)). For teachers who are open to learning, those who have intermediate levels of foreign language score (\(\bar{X} = 26.42\)) are higher than those who have basic levels of foreign language (\(\bar{X} = 25.39\)). For the teacher, who is open to development and collaboration, the average score of those with basic levels of foreign language (\(\bar{X} = 20.74\)) is lower than those of both with advanced levels (\(\bar{X} = 24.93\)) and with intermediate levels of foreign language (\(\bar{X} = 21.80\)).

Considering the effect levels of the level of foreign language awareness on the innovative teacher characteristics sub-dimensions of the participants; There was a 'moderate' effect (\(\eta^2=0.02\)), for the teacher open to information technologies, a 'high' effect (\(\eta^2=0.59\)) for the teacher open to learning, and a 'high' level effect (\(\eta^2=0.93\)) for the teacher open to development and collaboration. Accordingly, the level of foreign language affects mostly teachers' openness to development and collaboration, secondly being open to learning, and finally, being open to information technologies, respectively.

The Differences of the Scores Obtained from the Innovative Teacher Characteristics Scale of the Teachers According to the Teachers' Branches

One Way ANOVA analysis was conducted to examine whether participants' innovative teacher characteristics vary according to their branches. The analysis result is given in Table 9. The branches of teachers, the Science and Mathematics Group (Biology, Physics, Chemistry, Mathematics, Information Technologies), Social Sciences Group (Geography, Religious Culture and Ethics, Philosophy, Guidance, History, Turkish Language and Literature, Visual Arts) and Foreign Language Group (German, Arabic, French, English and Spanish) are expressed.
Table 9: The Results of One-Way Variance Analysis on Total Score Averages for Innovative Teacher Characteristics Regarding Teachers' Branches

<table>
<thead>
<tr>
<th>Scale / Size</th>
<th>Source of variance</th>
<th>Squares total</th>
<th>sd</th>
<th>Squares average</th>
<th>F</th>
<th>Anova straight</th>
<th>Difference</th>
<th>Impact Size η²</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITC Total</td>
<td>Intergroup</td>
<td>5370.31</td>
<td>2</td>
<td>2685.16</td>
<td>6.81</td>
<td>0.001*</td>
<td>1 ile 2,3</td>
<td>0.76</td>
</tr>
<tr>
<td></td>
<td>In-group</td>
<td>139584.92</td>
<td>354</td>
<td>394.31</td>
<td>5.94</td>
<td>0.03*</td>
<td>2 ile 1,3</td>
<td>0.66</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>144955.23</td>
<td>356</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher open to innovation</td>
<td>Intergroup</td>
<td>1169.68</td>
<td>2</td>
<td>584.84</td>
<td>5.94</td>
<td>0.03*</td>
<td>1 ile 2,3</td>
<td>0.06</td>
</tr>
<tr>
<td></td>
<td>In-group</td>
<td>32801.75</td>
<td>333</td>
<td>98.50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>33971.43</td>
<td>335</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher open to information technologies</td>
<td>Intergroup</td>
<td>244.46</td>
<td>2</td>
<td>122.23</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>In-group</td>
<td>11308.03</td>
<td>328</td>
<td>34.48</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher open to learning</td>
<td>Intergroup</td>
<td>27.14</td>
<td>2</td>
<td>13.57</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>In-group</td>
<td>3234.82</td>
<td>345</td>
<td>9.38</td>
<td></td>
<td>0.237</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>3261.95</td>
<td>347</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher open to development and collaboration</td>
<td>Intergroup</td>
<td>701.25</td>
<td>2</td>
<td>350.63</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>In-group</td>
<td>6433.78</td>
<td>338</td>
<td>19.04</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>7135.04</td>
<td>340</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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* p<0.05 meaningful

Branch: 1=Foreign Language Group, 2=Mathematics and Science Group, 3=Social Sciences Group

According to the analysis results, the average score of teachers varies significantly by branch [F(4-356)=6.81, p<.05]. In other words, teachers' innovative teacher characteristics vary significantly depending on their branches. This finding can also be interpreted as having an impact on teachers' innovative teacher characteristics. The Scheffe post-hoc test was performed to determine the groups in which the difference was between. According to the test result, the average score of foreign language teachers (X̄ =238.75) is significantly higher than the score averages of the other two branch teachers. The branch variable is calculated as η²=0.07, which shows the level of impact of participants on innovative teacher characteristics. Accordingly, the impact of the branch on innovative teacher characteristics of the participants is high.

Regarding the subdimensions, the teacher open to innovation [F(2-335)=5.94, p<.05], the teacher open to information technologies [F(2-330)=3.55, p<.05] and the teacher open to development and collaboration [F(2-340)=18.42, p<.05] score averages vary significantly by branch, while the score averages of the teacher open to learning do not differ significantly [F(2-347)=1.45, p>0.05]. The Scheffe test was performed to understand groups in which the difference was between. According to the test results, the teacher open to innovation (X̄ =129.99) average scores of math-science group teachers are lower than both of social studies teachers (X̄ =133.62) and of foreign language teachers (X̄ =134.13). For the scores of teachers open to information technology, the average score of foreign language teachers (X̄ =53.66) is higher than the average score (X̄ =51.32) of math science teachers. For teachers open to development and co-operation, the average score of foreign language teachers (X̄ =25.11) is higher than the average score (X̄ =21.31) of social studies teachers.

When you look at the levels of impact of the branch on the subsize of innovative teacher characteristics of the participants; A moderate effect for the teacher open to learning (η²=0.03), for the teacher open to information technologies (η²=0.06) and for the teacher development and co-operation (η²=0.76) has been found to have a high level of impact.

RESULTS AND DISCUSSION

Teachers' Innovative Teacher Characteristics Level Related Results and Discussion
According to the first conclusion reached as part of the study, teachers often see their situation as having innovative teacher characteristics. Teachers themselves can be found to be at the highest level in the fields of innovation, information technology, learning, development and cooperation. In the research conducted by Özbek (2014), teachers perceive their individual innovation at a high level. According to the results of the research carried out by Kılıç (2015), teachers are low-level innovators. Teachers’ high-level innovation seems to have a positive impact on their professional development. Contrary to this research, Sahin İzmirli and Gürbüz (2017) reached the result that, nearly half of the teacher candidates were found to have low levels of innovation. The results of the research show that the level of innovation varies among teachers and teacher candidates. In the literature, there are various studies that link the high perception of self-sufficiency to teachers to being open to innovation in educational environments and agreeing to adapt them to easier classroom environments (Stein & Wang, 1988; Tschannen-Moran and Woolfolk-Hoy, 2001). The current study predicts that the general high degree of in-class status of participating teachers can positively affect the likelihood of following and in-class practices. However, although their view of themselves as innovative contributes to the acceptance and implementation of innovation by teachers in educational environments, it should be noted that there are many factors that enable any innovation to be adopted willingly by the teacher. Some of these factors are: knowledge, relevancy, desirability, effectiveness, reliability, applicability and adaptability (Hurst and Rust, 1990).

**The Results and the Discussion of the Differences of the Teacher’s Scores on the Innovative Teacher Characteristics Scale Depending on the Types of Institutions They Work at (Public-Private / Science-Social Sciences)**

Innovation is essential for organizations (e.g. schools) to be functional, in other words, to effectively fulfill their activities (Koch, Binnewies & Dormann, 2015). It is also estimated that one of the parameters affecting academic output in schools is the innovation status of schools (Lubienski, 2003). There are studies suggesting that the innovation of any organization has a positive impact on the impact of that organization (Han, Kim & Srivastava, 1998; Hult, Hurley & Knight, 2004). Furthermore, teachers in schools with positive corporate culture have been suggested to be more entrepreneurial in experimenting with innovation (Petorson & Deal, 1998). School and teacher influence each other at the point of innovation. At this point, identifying the innovative characteristics of teachers according to school types will enable the institution to reveal what kind of impact the type of teacher has on innovative teacher characteristics. The score averages of innovative teacher characteristics factors of teachers vary significantly depending on the type of school (public/private). The fact that teachers work at Public-Private institutions affects their ability to have innovative teacher traits. Teachers working at private schools have higher points averages than public teachers’ points averages. In terms of being open to innovation, information technologies, development and collaboration, teachers at private schools are better than teachers at public schools. For the factor of being open to innovation, teachers working at private schools have higher average scores than teachers working at public schools. Regards being open to information technology, teachers working at private schools have higher average scores than teachers working at public schools, In terms of being open to development and cooperation, teachers working at private schools have higher average scores than teachers working at public schools. The reason why teachers working at private schools have a high status of innovative teacher characteristics is that schools have good physical environments, they have innovative organizations and climates, and they have support for teachers being open to innovation, information technologies, learning, development and cooperation. Teachers' innovative teacher characteristics score averages do not differ significantly depending on the type of school (science/social sciences). There is no significant difference among the teachers who work at Public-Private science and social sciences high schools regarding the type of schools.

**The Results and the Discussion on the Differences of Teachers’ Scores on the Innovative Teacher Characteristics Scale Depending on Teachers’ Gender**
Teachers' innovative teacher characteristics score averages do not differ significantly depending on their gender. Being male or female, do not generally affect teachers’ owning innovative teacher traits. When teachers' gender status is examined by subdimensions, teachers' being open to innovation varies significantly by gender, while being open to information technologies, being open to learning, being open to development and collaboration do not differ significantly according to gender. Only female teachers are more open to innovation than male teachers. The study by Korucu and Olpak (2015) found no significant difference between the genders and individual innovation characteristics of teacher candidates. In another study, being female or male did not affect teachers’ levels of innovation (Demir Basaran and Keleş, 2015) The genders of teachers and teacher candidates do not show any differences in the levels of innovation. Other research results also support the results of this research.

The Results and the Discussion on the Differences of Teachers' Scores on the Innovative Teacher Characteristics Scale Depending on the Teachers' Education Levels

Teachers' scores of innovative teacher characteristics do not differ significantly according to their education level. Teachers' levels of having innovative teacher characteristics do not increase in congruent with their levels of education. Teachers have similar innovative teacher characteristics based on their levels of education. In other words, within the scope of sub-dimensions, teachers' education levels do not affect the situation of being open to innovation, information technologies, learning, development and cooperation.

The Results and the Discussion on the Differences of Teachers' Scores on the Innovative Teacher Characteristics Scale Depending on Seniorities of Teachers

Teachers' innovative teacher characteristics vary significantly depending on their seniority. Teachers with seniority between 6-10 years have fewer innovative teacher traits than teachers with seniority of 5 years or less, 11-15 years, 16-20 years, 21 years or more seniority. While the sub-dimension of being open to development and cooperation by seniority differs significantly, it does not differ significantly depending on the sub-dimensions of being open to innovation, information technologies and learning. In his research, Demir Başaran and Keleş (2015) concluded that teachers' seniority year is not a variable that affects the levels of innovation.

The Results and the Discussion on the Differences of Teachers’ Scores on the Innovative Teacher Characteristics Scale Depending on Foreign Language

The teachers’ having innovative teacher characteristics varies significantly depending on their levels of foreign language. According to the levels of foreign language, the innovative teacher characteristics of teachers vary significantly. In other words, the levels of foreign language of teachers affect their innovative teacher characteristics. Teachers have more innovative teacher traits as their foreign language levels increase. Teachers with basic foreign language levels have less innovative teacher characteristics than teachers with advanced foreign language knowledge. Teachers' openness to information technologies, learning, development and cooperation differs significantly depending on the levels of the foreign language, however, their being open to innovation does not differ significantly depending on the levels of the foreign language. In terms of being open to information technologies, the average score of teachers with basic foreign language levels is lower than teachers with advanced foreign language knowledge. In terms of being open to learning, the average score of teachers with intermediate foreign language levels is higher than teachers with basic level of foreign language knowledge. In terms of being open to development and co-operation, average score of teachers with basic levels of foreign language is lower than teachers with advanced foreign language knowledge. As a result, the status of teachers having innovative teacher characteristics varies depending on the level of foreign language knowledge. Teachers having advanced foreign language knowledge increase their level of having innovative teacher characteristics. The benefit and importance of knowing a foreign language is a fact that is agreed on. English can be used to sample the finding obtained in the study.
more concretely. According to Nunan, "English is now unarguably the language of science and technology" (2003: 590). It can be said that teachers' first-hand acquisition of some information that supports and enhances innovative features such as new methods, teaching practices, pedagogical approaches, in the education field in general and their specific fields in particular, is directly related to foreign language information. In this respect, the positive-leaning relationship between teachers knowing a foreign language and having innovation traits is very meaningful.

The Results and the Discussion on the Differences of Teachers' Scores on the Innovative Teacher Characteristics Scale Depending on the Branches

Innovative teacher characteristics vary significantly in relation to branches. In other words, teachers' innovative teacher characteristics vary depending on their branches. So, the branches of teachers have impacts on their innovative teacher characteristics. Innovative teacher characteristics of foreign language group teachers are higher than social and science branch groups. While the subdimensions of being open to innovation, information technologies, development and collaboration differ significantly depending on branch groups, it does not differ significantly depending on the subdimension of being open to learning. The level of science and mathematics group teachers being open to innovation is lower than the social and literature group and foreign language group teachers. The level of openness of foreign language group teachers to information technology is higher than the teachers of the science and mathematics group. The level of development and cooperation of foreign language group teachers is higher than the teachers of the social sciences group. The research conducted by Kılıç (2015) concluded that there was no significant difference between teachers' levels of innovation and their branches. A study conducted on teacher candidates concluded that there was a significant difference between the departments where teacher candidates were trained and the levels of innovation (Bitkin, 2012).

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Using Metaphors to Investigate the Images of Countries

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Abstract

This study researched the use of metaphor among students and teachers to determine the images they had in their minds regarding a specific set of developed countries, and in doing so, utilized a longitudinal design carried out over four stages between November 2015 and November 2018 within a large metropolitan city in Turkey. The study findings revealed that the mental images of both teachers and students contained various stereotypical views about these developed countries. The participants appeared to have the most negative mental images about France, the United Kingdom (UK) and the United States (US), while having the most positive images about Australia and Japan. It was concluded that there is a strong relationship between metaphor creation and age, and that metaphor production increases rapidly as the students get older and more knowledgeable. It was also determined that metaphor quality and production rate decreases as teachers’ professional seniority increased.

Keywords: Metaphor; Country Image; Stereotypes

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INTRODUCTION

Metaphoric expressions are frequently used in a wide range of fields from economics, politics, the arts, and education. Usually formulated as ‘A is B’, the term “metaphor” has various definitions in the literature and has a broad range of application. For example, Saban, Kocbeker, and Saban (2007) describe metaphor as the use of two different concepts that seem irrelevant at first but in the end demonstrate similarity between the disparate concepts. According to Lakoff and Johnson (2005, pp. 27), “The essence of metaphor is understanding and experiencing one kind of thing in terms of another.”

One of the controversial issues related to metaphorical thought is where to place the field of metaphors within the pantheon of pedagogy and learning. Metaphors are often associated with philosophy, literature, or art (Burbules, Schraw, & Trathen, 1989; Lynch & Fisher-Ari, 2017). Importantly, Lakoff and Johnson (2005) argue that metaphors are not purely linguistic or artistic expressions but are actually an integral part of daily lives through are thoughts and communication. According to Lakoff and Johnson, people use metaphors very often albeit unwittingly in their daily lives. For example, Stites and Özçalışkan (2013) state that as social entities, human beings constantly encounter metaphoric expressions within their daily lives from childhood on through adulthood. There is some disagreement though about whether metaphors reflect emotion or thought. According to Jablonski, van der Lans, and Hermans (1998), metaphors are emotion-based, whereas Navaneedhan and Kamalanabhan (2016) suggest that metaphors are thought-based. However, Lynch and Fisher-Ari (2017) state that metaphors are at the intersection of our language, thoughts, and actions. Similarly, in their book titled ‘Metaphors We Live By’, Lakoff and Johnson (2005) state that our thoughts, emotions, and behaviours are actually reflected in and influenced by the metaphors we use.

Another important issue that affects metaphors is the society in which the individuals live. Our cultural perspective often influences most of our emotions, thoughts, and behaviours. Naturally, metaphorical expressions of each society include some distinct cultural interpretation (Deignan, 2003; Gibbs, 1999, 2011; Korner & Allison, 1965; Lakoff & Johnson, 2005; Yu, 2008). Lakoff and Johnson (2005) also highlight that sometimes our own personal idiosyncratic experiences and interpretations shape the metaphorical expressions we use, while at other times they are influenced by the social experiences and interpretations occurring around us.

Metaphors in Education

There has been a growing interest in the educational use of metaphors. Lakoff and Johnson (2005) state that metaphoric thinking develops with learning. A majority of researchers agree that metaphor is an important tool for education and learning. For example, Stofflett (1996) mentions that students’ cognitive levels can be determined through metaphors and they can be used to test students’ prior knowledge, especially before moving on to a new subject. Metaphors can help make emotions and thoughts more exciting, entertaining, intense, and understandable (Low, 2008; Mahood, 1987) as well as can increase students’ motivation to learn (Low, 2008; Lynch & Fisher-Ari, 2017). Metaphors are attention-grabbing (Jablonski, et al., 1998; Lynch & Fisher-Ari, 2017), so they can contribute to students’ active participation in the learning process and metaphors can also facilitate communication (Nelson, 1993). Applied to identify any concepts or issues that were missed by students, metaphors can be used as an end-of-unit assessment tool (Lynch & Fisher-Ari, 2017). Metaphors can also be utilised to present any difficult, complex, and/or sophisticated associations necessary to learn a subject/topic (Lynch & Fisher-Ari, 2017).

Metaphors both increase awareness of familiar concepts and encourage different ways of thinking (Becker, 1997). For example, Low (2008) and Mahood (1987) point out that metaphors contribute to students’ learning in the concretisation of abstract subjects. Low (2008) also mentions that the use of metaphorical expressions in education can improve students’ ability to use foresight. In
addition, metaphors can contribute to the development of high-level thinking skills (Low, 2008; Mahood, 1987; Navaneedhan & Kamalanabhan, 2016; Stites & Özçalışkan, 2013).

Cunningham (1976) states that metathoric thinking is directly related to literacy; while Lynch and Fisher-Ari (2017) state that the use of metaphors as an educational tool positively affects students’ language development. Especially individuals with advanced language skills and sufficient vocabulary; they can more readily understand and explain metathorical expressions and/or create their own metathorical sentences (Stites & Özçalışkan, 2013). The related research literature confirms that there is a strong relationship between metathorphic thinking and creative thinking (Gardner, Kircher, Winner, & Perkins, 1975; Glicksohn, Kraemer, & Yisraeli, 1993; Stuhlfaut & Vanden Bergh, 2014). In summary, metaphors can be used both as a teaching and/or assessment tool at differing stages of the educational process. Thus, different types of learner skills such as language skills, high-level thinking, and communication skills can be supported. Also metaphors can increase the awareness of learning within the educational environment, and as a result, can positively affect students’ motivation by providing a fun learning environment.

Metaphors and Cognitive Development

The Cognitive Development Theory (CDT) focuses on the change in human mental activities stemming from the interaction of innate genetic characteristics and environmental factors. In other words, this theory examines the effects of both inheritance and environmental factors on mental development (Fischer, 1980). Proponents of this theory argue that cognitive development occurs through various levels starting from birth. Piaget (1964), one of the leading advocates of the CDT, defines the successive stages of cognitive development as sensory-motor, pre-operational, concrete operational, and formal operational stages. Bruner (1964), on the other hand, describes three levels of cognitive growth as enactive, iconic, and symbolic. While Vygotsky does not divide cognitive development into levels, he emphasises the critical impact of social environment such as peers and adults on cognitive development (Van der Veer & Valsiner, 1991). Similarly, Rutter (1985) emphasises environmental factors in cognitive development. For example, even a child’s siblings’ order of birth, and the amount of time parents devote to care for their children affect cognitive development. According to Rutter (1985), there is a strong correlation between cognitive development and education. Rutter asserts that high-quality education is one of the most important factors supporting cognitive development.

According to the CDT, the majority of secondary school students have either reached or are about to reach adolescence. Choudhury, Blakemore, and Charman (2006, pp. 165) define adolescence as “the transition period between late childhood and the onset of adulthood.” Steinberg (2005) examined the changes in the brain based on the findings of developmental neuroscience research. According to Steinberg (2005), the brain undergoes an intensive process of change in adolescence, both functionally and physically. Research shows that the development of the brain system is quite different in boys and girls, but generally intensifies around 11 years of age (Choudhury et al., 2006). In this period, children can make classifications and comparisons, reach generalisations through logical reasoning, and their symbolic and hypothetical thinking skills develop rapidly. According to the CDT, towards the end of adolescence, young people begin to have access to the thinking abilities of adults.

Özçalışkan (2007) and Vosniadou (1989) state that parallel to the CDT, metathorical thinking develops through various stages. There are many studies in the literature that deal with the relationship between metathorical thinking and age. These studies consistently show that the process of understanding and explaining the metaphor improves with age (Bialecka-Pikul, 2010; Dent, 1987; Glicksohn & Yafe, 1998; Özçalışkan, 2007). Some of the studies describe the metathorical processes observed in age-related development in detail, for example, Özçalışkan (2007) states that 3 to 4 year old children can liken the objects they do not know to the objects they know, and that children around 5 years of age can make comparisons between objects. In addition, Siltanen (1990) states that children
between 5 and 8 years of age are able to understand easy metaphors. Özçalışkan (2007) reports that children between 9 and 12 years old can not only understand complex metaphors but also begin to produce their own metaphors. Furthermore, Siltanen (1990) suggests that children between the ages of 12 and 14 are able to understand easy, moderately difficult, and difficult metaphors, and they are also increasingly able to elaborate on metaphorical sentences until adulthood. Winner, Rosenstiel, and Gardner (1976) also state that metaphoric understanding becomes more sophisticated from adolescence onwards. In summary, research findings show that children from an early age can gradually understand and explain metaphorical sentences more-and-more. Past research findings also indicate that the process of metaphorical thinking is in line with the stages of cognitive development.

**Metaphors and Country Image**

It can be crucial in international relations that nations project a positive image. Many countries conduct periodic research to determine how they are perceived by other countries and may even carry out advertising and marketing projects to improve their image (Chattalas, Kramer, & Takada, 2008). Especially with the process of globalisation, national image has become a key factor in many aspects (e.g., economic, political, cultural, etc.). Around the world, the act of making generalisations about a group (e.g., ethnic, religious, etc.) or a country based on a few known facts or rumours has been done throughout human history. It is often the case that these generalizations turn into stereotypes. Lippmann first introduced the concept of stereotypes, one of the most important subjects in social psychology, in 1922. Lippmann (1922) defines stereotypes as mental patterns that result from “exaggerations or misunderstandings” in human perception. Although Lippmann was the first to use the concept of stereotypes, Katz and Braly (1933) were the first researchers to collect scientific data on this subject. In 1933, Katz and Braly developed a measurement tool to reveal the perceptions of students at Princeton University towards various groups. This tool has gone on to be used by researchers to identify social group perceptions from around the world for more than 80 years.

Allport (1954), who carried out some notable studies on group behaviour, states that stereotypes contain prejudices. Katz and Braly (1933) suggest that people are often prejudiced in making a judgment about a group or nation based on very limited information. Extensive research is available in the literature that focuses on country images or stereotypes (e.g., Chandra, 1967; Child & Doob, 1943; Diab, 1962, 1963; Gilbert, 1951; Katz & Braly, 1933; Madon, et al., 2001; Milcll & Ellemers, 1996; Sierp & Karner, 2017; Terracciano et al., 2005). According to Child and Doob (1943), stereotypes are learned under the influence of various environmental elements. Therefore, perceptions towards other countries tend to be similar in most individuals living in a particular society. In other words, it is possible to see the cultural patterns of a particular society in the perceptions of its members towards other countries and/or groups. Sherif and Sherif (1956) draw attention to the consistency of stereotypes formed in groups. Diab (1962, 1963) states that dominant judgments (e.g., stereotypes) in social groups tend to persist even years later, and that these stereotypes are very resistant to change. In short, factors such as the environment we live in, the education we receive, and our religious or political affiliations shape our perception of countries and these perceptions become consolidated and resistant to change.

In this longitudinal study, some of the participants (e.g., students) were in their late childhood or early adolescence. Importantly, the transition from late childhood to adolescence is considered as one of the most intense periods of physical, social, and cognitive development. Therefore, adolescence is considered as a critical and sensitive period (Steinberg, 2005). Focusing on metaphors, this current study attempts to reveal how various country images are perceived by students. According to the CDT, children tend to form their own vision and perception systems from adolescence. In addition, children of this period gradually move away from their families and interact more closely with their peer and school environment as part of their socialisation (Choudhury et al., 2006). This study also includes social studies teachers because these educators are both an adult figure that can impact children within this age group as well as the people responsible for laying some of the students’ mental foundations, in particular to this study, the image perception of various countries.
Although many studies have been conducted on country images or stereotypes, many of these studies have been criticised for their data collection techniques (Diab, 1962, 1963). The data collection tool developed by Katz and Braly (1933), one of the first and most widely used data collection tools, has been criticised for restricting the free expression of the images in the minds of the participants. Likewise, the survey developed by Terracciano et al., (2005) is criticised for the inadequacy of the characteristics attributed to countries. In brief, the criticism of the data collection techniques utilised in these studies focuses on the following question: “Would the results be similar if the adjective lists or qualities attributed to countries were different?”. Based on these criticisms, no adjective list, questionnaire, or scale items about the countries were provided to the participants. In this study, the mental images held by the participants for various countries were identified through the original metaphors that the participants created on their own. The difference of this study from other studies can be summarised as follows:

i. The previous country image studies have been conducted mostly by scale, questionnaire, checklist, document review, or interviews (e.g., Child & Doob, 1943; Diab, 1962; Katz & Braly, 1933; McCrae & Terracciano, 2005; Terracciano et al., 2005). The review of literature for the present study revealed no studies analysing country perceptions through metaphors. In this study, a new data collection tool (e.g., metaphor) was employed to reveal the mental images for countries constructed by learners and educators.

ii. The previous studies on metaphor have mostly focused on understanding and explaining some predetermined metaphors (e.g., Özçalışkan, 2007; Siltanen, 1990; Winner et al., 1976). This study, however, makes a novel contribution to the literature because the participants had to form their own metaphorical expressions.

iii. Moreover, this study differs from other studies in that it reveals the metaphorical thinking development of the participants over a period of four years.

The main purpose of this study was to reveal the mental images of secondary school students and social studies teachers in secondary schools about various countries through metaphors. For this purpose, the answers were sought for the following questions:

1. What are the images of various countries in the minds of secondary school students and secondary school social studies teachers, and how can these images be categorised?

2. Do the socioeconomic level (SES) and/or age of students play a role in their metaphors?

3. Do social studies teachers’ seniority and progression of time affect their metaphors?

METHOD

Participants

This study was carried out in four stages. The research implementation was carried out in November 2015, December 2016, November 2017, and November 2018. Students in secondary schools and social studies teachers teaching at secondary schools participated in the study. In light of the statistics obtained from the Turkish Statistics Institute (TUIK), 18 secondary schools representing various socio-economic levels were identified to be included in the study. The purpose of the study was explained to the school principals during interviews at these schools, and they were then asked if they were willing to participate in the study. The necessary research permissions were obtained for the participating schools (n= 13). From among the participating schools, one school for each of the SES levels including lower, middle, or upper were selected. The classes with the academic achievement level closest to each other were determined and the research was conducted with the students studying in these classes over a four-year period. All the social studies teachers teaching in the 13 secondary
schools that granted permission for the study participated in the study. Parental permission was obtained for the students.

This longitudinal study began in 2015 with 89 secondary school 5th grade students. Eight students from the lower socioeconomic level, nine students from middle SES level, and six students from upper SES level had to be excluded from the study because they could not consistently participate in the research. Thus, 66 students (e.g., 23 students from lower SES level, 21 from middle SES level, and 22 from the upper SES level) participated in the entirety of the study. Only data from students who participated in every stage of the study were included in the analysis. In 2015, the number of teachers who voluntarily agreed to participate and produce metaphors was 49. However, some of the teachers did not participate in all the stages of the study due to reasons such as being posted to another school, quitting their jobs, or being on leave. For this reason, the research was completed with the teachers (n = 38) who participated in all steps of the study and only the data elicited from these teachers were utilized in the analysis.

Of the secondary school students participating in the study, 53% were girls and 47% were boys. In 2015, the average age of the students was 10 years and 7 months. The average age of the students was 13 years 7 months in 2018, the year the study was completed. Of the 38 teachers participating in the study, 68% were female and 32% were male. The seniority of the teachers was as follows: nine teachers with 0-5 years of experience, eight teachers with 6-10 years of experience, nine teachers with 11-15 years of experience, seven teachers with 16-20 years of experience, and five teachers with 21 or more years of experience. None of the participants had learning disabilities and/or neurological disorders.

**Data collection tool**

First of all, a template was created in which both students and teachers could express their perceptions about the countries presented to them more easily. The countries were placed in the template in accordance with the formula ‘A IS B’, used by Lakoff and Johnson (2005). A metaphor booklet was created, with each of the countries placed on a separate page, for example, as “The United States of America is ……… Because ………”. In the metaphor booklet, source domains were presented to the participants as countries in a pre-set way. A few lines of space were left in the metaphor booklet for participants to create target domains. This space is followed by the “Because” connector, which was provided to help participants explain the logical reasons for similarities between the source and target domains.

While the number of countries given to the participants was 12 in the pilot study, based on the expert opinions, this number was reduced to seven in the actual research implementation. To determine the countries to be included in the study, social studies curriculum and textbooks utilised in Turkey were first examined, and the developed countries that the most information was provided about in the textbooks, were selected to be included in the study. In the metaphor booklet, the same countries were presented to the students and teachers in the same order over the duration of the four-year study. The order of the countries listed in the metaphor booklet was as follows: 1. The United States, 2. Germany, 3. The United Kingdom, 4. France, 5. Canada, 6. Japan, and 7. Australia.

Before distributing the metaphor form to the participants, a preliminary study was conducted with the participants about a concept not included in the study. The purpose of doing this was to increase the familiarity of students and teachers with producing metaphors. For example, the participants developed sample metaphors about “teacher” in 2015, “student” in 2016, “book” in 2017, and “social studies” in 2018. The students completed the country metaphors activity in approximately 80 minutes, while the teachers produced their metaphors in approximately 30 minutes.
Data analysis

Analysis of the Qualitative Data: In the analysis of the metaphor data, the method used by Saban (2004, 2010) was adopted. Firstly, the metaphors produced by the participants (e.g., students and teachers) over the four-year research period, were assigned ordinal numbers. Then, it was determined whether the participants were able to produce metaphors for the countries concerned. In this stage, i) the papers that were left blank, ii) the papers that provided introductory explanations for countries instead of forming a metaphor image, and iii) the papers that could not reasonably present a metaphor image were excluded from the analysis.

Once valid metaphors were detected, the metaphor forms were re-ordered and analyzed. In this analysis, the subject of the metaphors and the relationships between the source and target domains were analyzed. For each country, the metaphors with the same basic idea were divided into individual conceptual categories. Then, the sample metaphors representing each conceptual category were identified. A different number of conceptual categories were reached for each country. The tables showing the distribution of conceptual categories by years and type of participants were created and presented with sample metaphors in the findings section.

After analyzing all the collected data, to confirm the conceptual categories, an expert opinion was obtained from a faculty member experienced in qualitative research. The opinions of the expert and the researcher were then compared. With these two analyses, the agreement percentage for the metaphors produced for each country for the total of four years was calculated (Miles & Huberman, 1994). Then, the expert and researcher met to re-evaluate the categories and metaphors on which they did not concur. As a result of these meetings, two categories were merged and one category was renamed. In addition, a category for the UK was divided into two different categories.

Analysis of the Quantitative Data: Firstly, in order to determine whether the distribution of the metaphor numbers had normal distribution, the kurtosis and skewness values of the scores were examined. Since the number of observations of the students was over 50, the Kolmogorov-Smirnov test was utilized to determine the normality assumption in the analyses of the students, and the Shapiro-Wilk test was utilized to determine the normality in the analyses conducted for the teachers because the number of teacher observations was below 50. The repeated measurement analyses (e.g., paired t-test or Friedmann test) were utilized to determine whether the metaphor numbers differed in repeated measurements. This methodology was determined by examining whether the repeated measures showed normal distribution in all categories. Since the score distribution was not normal in all categories, the Friedmann test was utilized for the analysis of repetitive measurements. For the purposes of this study, the analyses for comparison of means (e.g., ANOVA or Kruskal Wallis) were used to compare whether the metaphor numbers differed according to the independent variables. Again, this method was selected on the basis of whether the metaphor numbers showed normal distribution in all categories of the independent variable. The Kruskal Wallis test was used for the comparison of the averages because the score distribution was not normal in all categories of the independent variables (e.g., based on the normality analysis).

RESULTS

In this part of the study, mental images of students and teachers regarding the US, Germany, the UK, France, Canada, Japan, and Australia are presented in categories and through sample metaphors. Then, the conceptual categories developed by the students for various countries were compared in terms of the students’ socioeconomic level and years of education. Finally, the conceptual categories developed by the social studies teachers for various countries are presented by comparing the seniority of teachers as well as the year(s) (1-4) of teaching.
Table 1. Distribution of the conceptual categories of student and teacher metaphors for the United States (US)

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<th>Category</th>
<th>Student</th>
<th>Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>The United States Of America (USA)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. The US as a harmful country</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>2. The US as a ruling country</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>3. The US as a powerful country</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>4. The US as a country that supports science</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>5. The US as a multicultural country</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>6. The US as a desirable country</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7. The US as a country that stands out with its geographical features</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>8. The US as a country with changing decisions</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>A total of 210 valid metaphors were produced for the US over four years.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A total of 210 valid metaphors were produced for the US over four years, of those 111 were by the students and 99 were by the teachers. It was determined that the most common image in the minds of both students and social studies teachers for the US was “the US as a harmful country” category (n = 74). In the “the US as a harmful country” category, both teachers and students’ perceptions emphasised that the US is harming people of other countries for its own interests. For example, in this category, the metaphor developed by a student in 2018 suggests that the US is harming people in many countries. “The US is the wolf in The Little Red Riding Hood fairy tale. Because the wolf tells all kinds of lies to eat her. The purpose is to eat the girl. Just like that, the US tells all kinds of lies to eat (exploit) other countries. Its purpose is only to eat (exploit) those countries.”

In “the US as a ruling country” category, a teacher developed the following metaphor in 2018: “The US is a film director. Because the director decides who gets on the stage, who gets off the stage, and who plays the role. He even decides who should say what on stage. The US of America decides on who should take the stage and who should get off the stage in politics, economics, and science. He gives everyone a role, controls the film like a director. In short, the US rules the whole world.”

In “the US as a country with changing decisions” category, a teacher expressed her metaphor on the same category in 2017 as follows: “The US is a teenage girl. Because she has ups and downs. Sometimes she is calm, but sometimes she throws fits. Sometimes she is kind-hearted. Like adolescent girls, the US changes its decisions very quickly, contradicts itself from day-to-day.”

Table 2. Distribution of the conceptual categories of student and teacher metaphors for Germany

<table>
<thead>
<tr>
<th>Category</th>
<th>Student</th>
<th>Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Germany as a hardworking country</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2. Germany as a disciplined country</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>3. Germany as a powerful country</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>4. Germany as a hypocrite country</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>5. Germany as a rich country</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>6. Germany as a knowledge-producing country</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7. Germany as a beloved country</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>4</td>
<td>13</td>
</tr>
</tbody>
</table>

106
The participants developed a total of 181 metaphors reflecting their mental image of Germany as a country. It was found that the image of “Germany as a hardworking country” category (n= 57) was the most popular image for Germany in the minds of both the students and social studies teachers. In 2015, a student created the following metaphor, which can be given here to represent this category: “Germany is an army of ants. Because ants work non-stop. The Germans work hard too. That’s why they are like ants.”

Regarding the “Germany as a hypocrite country” category, the students formed five metaphors and the teachers formed 17 metaphors. In these metaphors, it is emphasised that Germany’s attitudes and behaviours change drastically according to its interests. For example, a metaphor formed in 2017 by a student is: “Germany is a chameleon. Because the chameleons change their colours according to where they are, never reveal themselves. The Germans can pull all sorts of tricks for their interests without revealing their true selves and thoughts...”

For the category “Germany as a rich country”, the students formed six metaphors, and the teachers formed ten metaphors, yielding a total of 16 valid metaphors. Representing the “Germany as a rich country” category, the following metaphor created by a teacher in 2017 was provided: “Germany is the rich ruler Croesus in history. Because it is economically a very rich country.”

Table 3. Distribution of the conceptual categories of student and teacher metaphors for the UK

<table>
<thead>
<tr>
<th>The UK</th>
<th>Student</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The UK as a harmful country</td>
<td></td>
<td>2</td>
<td>6</td>
<td>9</td>
<td>17</td>
<td>34</td>
</tr>
<tr>
<td>2. The UK as a ruling country</td>
<td></td>
<td>1</td>
<td>2</td>
<td>6</td>
<td>7</td>
<td>16</td>
</tr>
<tr>
<td>3. The UK as a powerful country</td>
<td></td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>4. The UK as a selfish country</td>
<td></td>
<td>0</td>
<td>2</td>
<td>5</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>5. The UK as a wise country</td>
<td></td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>6. The UK as a country with a long history</td>
<td></td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>3</td>
<td>13</td>
<td>28</td>
<td>37</td>
<td>81</td>
</tr>
</tbody>
</table>

For the UK, the secondary school students and social studies teachers produced 177 valid metaphors over the four-year study period. The analysis of the data revealed that the highest number of metaphors (n= 66) formed by the secondary school students and social studies teachers in regards to the UK was “The UK as a harmful country”. In the metaphors produced in this category, as for the US, the main idea that the UK harms other countries for its own interests was highlighted. For this category, a student created the following metaphor in 2018: “The UK is the step-mother in the Cinderella Story. Because it torments the weak and vulnerable states in order to take advantage of the aboveground and underground resources. Like the stepmother in the story.”

The students formed 16, and the teachers formed 20 metaphors for the category of “The UK as a ruling country”. In this category, it was emphasised that the UK dominates other countries, especially underdeveloped countries. For this category, a student created the following metaphor in 2018: “The UK is the queen bee. Because the queen bee rules all the other bees and the UK rules other countries.”

The analysis of the metaphor booklets revealed that for “The UK as a selfish country” category, the students formed 11 metaphors and the teachers formed 13 metaphors. For example, a metaphor one of the students created in 2018 is: “The UK is a woman with red nail polish. Because these women value their nail polish very much, and they do not want to spoil their nail polish. But these women (The UK) make the dirty and hard work they need done by the poor country people. They only care about their nail polish. Because their nail polish is worth more than the lives of other people.”
Table 4. Distribution of the conceptual categories of student and teacher metaphors for France

<table>
<thead>
<tr>
<th>France</th>
<th>Student</th>
<th>Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. France as a harmful country</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>2. France as a conceited country</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>3. France as a hypocrite country</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>4. France as a country that evokes nice feelings</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>5. France as a country in disorder</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>6. France as a country influenced by powerful countries</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7. France as a country with inconsistent behaviours</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>8. France as a country with a strong culinary culture</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>0</td>
<td>5</td>
</tr>
</tbody>
</table>

In this study, the participants formed a total of 99 metaphors for France. When these metaphors were examined according to common characteristics, the most repetitive metaphors were determined to be in the category of “France as a harmful country”. In this category, the students and teachers produced the same number of metaphors. A teacher produced the following metaphor in 2015: “France is a powerful hurricane. Because it destroys everywhere it goes through. It destroys all the beauties on its path.”

For the “France as a hypocrite country” category, 15 valid metaphors (e.g., six by students and nine by teachers) were created. The metaphors representing the category in general bear the idea that France has changed its thinking and behaviour in line with its interests. In 2017, one of the teachers said, “France is a crocodile. Because crocodiles shed fake tears after eating their offspring. After doing all the evils, France pretends to be sad…”

For the “France as a country with inconsistent behaviours” category, the participants provided seven metaphors. The students developed five of these metaphors and the teachers developed two of them. For example, in 2017, the following metaphor was provided by a teacher: “France is a woman with inconsistent behaviour. Because you cannot predict what such a woman will do and when she will do it. France is as an incomprehensible country as (such) women.”

Table 5. Distribution of the conceptual categories of student and teacher metaphors for Canada

<table>
<thead>
<tr>
<th>Canada</th>
<th>Student</th>
<th>Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Canada as a country with cold climate</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>2. Canada as a neutral country</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>3. Canada as a country evoking nice feelings</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4. Canada as a knowledgeable country</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5. Canada as a desired country</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>6. Canada as a powerful country</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7. Canada as a charismatic country</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>8. Canada as a trust-inspiring country</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>9. Canada as a lesser-known country</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10. Canada as a multicultural country</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>11. Canada as a copycat country</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

Participants developed 121 metaphors reflecting their mental image of Canada. For the category of “Canada as a neutral country”, students created six metaphors and the teachers created eight metaphors. In the metaphors representing this category, participants highlighted the idea that Canada stays out of world political issues. One metaphor a student produced in 2016 is as follows:
“Canada is an artificial plant. Because it does neither harm nor benefit. It does not interfere with any country’s business.”

Over the four years, the students produced two and the teachers produced five valid metaphors for the “Canada as a lesser-known country” category. Another metaphor produced by a teacher is as follows (in 2018): “Canada is a mysterious woman. Because people know very little about it...”

All the participants who explained their mental image of Canada in the category of “Canada as a multicultural country” were teachers (n= 6). The teachers emphasised that Canada is a mixture of French and British cultures. In 2016, one of the teachers expressed her mental image of Canada as follows: “Canada is a mixed-race child. Because some of its genes come from French relatives and some from British relatives.”

Table 6. Distribution of the conceptual categories of student and teacher metaphors for Japan

<table>
<thead>
<tr>
<th>Japan</th>
<th>Student</th>
<th>Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Japan as a hardworking country</td>
<td>3 3 5 6 17 11 11 16 14 52</td>
<td></td>
</tr>
<tr>
<td>2. Japan as a country with intelligent people</td>
<td>0 3 2 2 7 2 2 2 4 10</td>
<td></td>
</tr>
<tr>
<td>3. Japan as a country producing science and technology</td>
<td>0 0 2 4 6 3 1 2 2 8</td>
<td></td>
</tr>
<tr>
<td>4. Japan as a powerful country</td>
<td>0 0 0 0 0 0 4 1 2 7</td>
<td></td>
</tr>
<tr>
<td>5. Japan as a country of similar people</td>
<td>0 0 2 2 4 0 0 0 0 0</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3 6 11 14 34 16 18 21 22 77</td>
<td></td>
</tr>
</tbody>
</table>

For Japan, a total of 111 valid metaphors were produced, 34 created by the students and 77 created by the teachers. The “Japan as a hardworking country” category (n = 69) was the most popular image of Japan in the minds of both students and teachers. For example, one student in 2016 created the following metaphor: “Japan is a robot. Because it works tirelessly like robots.”

The second highest-ranking category in the participants’ minds was “Japan as a country with intelligent people”. In this category, students produced seven and teachers produced ten metaphors. For example, in 2018, the image of Japan on a student’s mind was: “Japan is Jerry in Tom And Jerry. Because the Japanese are smart. Every move of them is clever. That’s why they look like Jerry.”

The category “Japan as a country of similar people” received the least number of metaphors over the four-year period of the study. All of the metaphors produced for this category were from the secondary school students (n= 4). For example, in 2017, a student explained his mental image of Japan with this metaphor: “Japan is a community of cloned people. Because the Japanese are very similar. They seem to be cloned, and they are very difficult to tell apart.”

Table 7. Distribution of the conceptual categories of student and teacher metaphors for Australia

<table>
<thead>
<tr>
<th>Australia</th>
<th>Student</th>
<th>Teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Australia as a neutral country</td>
<td>0 1 0 2 3 3 3 5 13</td>
<td></td>
</tr>
<tr>
<td>2. Australia as a country evoking nice feelings</td>
<td>0 0 2 2 4 0 3 3 3 9</td>
<td></td>
</tr>
<tr>
<td>3. Australia as a lonely country</td>
<td>0 0 1 2 3 1 2 2 3 8</td>
<td></td>
</tr>
<tr>
<td>4. Australia as a less-known country</td>
<td>0 0 0 2 2 2 1 2 2 7</td>
<td></td>
</tr>
<tr>
<td>5. Australia as a country whose name is confused</td>
<td>0 0 0 0 0 2 1 3 2 8</td>
<td></td>
</tr>
<tr>
<td>6. Australia as an incorrectly known country</td>
<td>0 0 2 2 4 0 0 0 0 0</td>
<td></td>
</tr>
<tr>
<td>7. Australia as a country that stands out with its geographical features</td>
<td>0 0 0 2 2 0 0 1 1 2</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>0 1 5 12 18 7 10 14 16 47</td>
<td></td>
</tr>
</tbody>
</table>
For Australia, the students and social studies teachers in secondary schools formed 65 valid metaphors. When these metaphors were examined according to their common characteristics, it was found that the most repetitive metaphors were in the “Australia as a neutral country” category, regarding which participants emphasised Australia’s avoidance of world politics in general. In this category, the students produced three metaphors, and the teachers produced 13 metaphors. One of the students produced the following metaphor in 2018: “Australia is a turtle. Because the turtle lives in its shell, and Australia lives like a turtle in its shell, without interfering with anything.”

For “Australia as a lesser-known country” category, students produced two metaphors and teachers produced seven metaphors. For example, in 2015, a teacher described her metaphor as follows: “Australia is a book that very few people have read. Because very few people know about it…”

For the “Australia as a country whose name is confused” category, students did not produce any metaphors while the teachers produced eight metaphors. In all of these metaphors, teachers emphasised the confusion between Austria in the Northern Hemisphere and Australia in the Southern Hemisphere. For example, in 2017, a teacher described her metaphor as follows: “Australia is a student whose name is always remembered incorrectly. Because Australia and Austria are always confused…”

The students’ socioeconomic level (SES), teachers’ seniority, and teachers’ experience were also analysed to determine whether these factors impacted in the production of metaphors. Results of the Friedman test, which was applied to determine whether the number of metaphors produced by students about developed countries varied by year are presented in Table 8.

Table 8. Results of the Friedman test for the number of metaphors produced by students about developed countries by year.

<table>
<thead>
<tr>
<th>Country</th>
<th>Test</th>
<th>N</th>
<th>Mean rank</th>
<th>SD</th>
<th>$\chi^2$</th>
<th>$p$</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The USA</td>
<td>1</td>
<td>66</td>
<td>1.75</td>
<td>3</td>
<td>112.46</td>
<td>0.00*</td>
<td>4&gt;3, 4&gt;2, 4&gt;1, 3&gt;2, 3&gt;1, 2&gt;1</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>66</td>
<td>2.02</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>66</td>
<td>2.87</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>66</td>
<td>3.36</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The UK</td>
<td>1</td>
<td>66</td>
<td>1.98</td>
<td>3</td>
<td>69.66</td>
<td>0.00*</td>
<td>4&gt;3, 4&gt;2, 4&gt;1, 3&gt;2, 3&gt;1, 2&gt;1</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>66</td>
<td>2.28</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>66</td>
<td>2.73</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>66</td>
<td>3.01</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>1</td>
<td>66</td>
<td>2.08</td>
<td>3</td>
<td>54.69</td>
<td>0.00*</td>
<td>4&gt;3, 4&gt;2, 4&gt;1, 3&gt;2, 3&gt;1, 2&gt;1</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>66</td>
<td>2.36</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>66</td>
<td>2.66</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>66</td>
<td>2.90</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canada</td>
<td>1</td>
<td>66</td>
<td>2.14</td>
<td>3</td>
<td>62.35</td>
<td>0.00*</td>
<td>4&gt;3, 4&gt;2, 4&gt;1, 3&gt;2, 3&gt;1</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>66</td>
<td>2.23</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>66</td>
<td>2.62</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>66</td>
<td>3.02</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>France</td>
<td>1</td>
<td>66</td>
<td>2.12</td>
<td>3</td>
<td>56.26</td>
<td>0.00*</td>
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<tr>
<td></td>
<td>2</td>
<td>66</td>
<td>2.27</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>66</td>
<td>2.61</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>66</td>
<td>3.00</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>1</td>
<td>66</td>
<td>2.36</td>
<td>3</td>
<td>22.25</td>
<td>0.00*</td>
<td>4&gt;2, 4&gt;1, 3&gt;2, 3&gt;1</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>66</td>
<td>2.39</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>66</td>
<td>2.59</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>66</td>
<td>2.73</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Japan</td>
<td>1</td>
<td>66</td>
<td>2.33</td>
<td>3</td>
<td>16.85</td>
<td>0.00*</td>
<td>4&gt;2, 4&gt;1, 3&gt;2, 3&gt;1</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>66</td>
<td>2.42</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>66</td>
<td>2.58</td>
<td>3</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>66</td>
<td>2.67</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1</td>
<td>66</td>
<td>1.58</td>
<td>3</td>
<td>145.54</td>
<td>0.00*</td>
<td>4&gt;3, 4&gt;2, 4&gt;1, 3&gt;2, 3&gt;1, 2&gt;1</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>66</td>
<td>1.94</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>66</td>
<td>2.79</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>66</td>
<td>3.70</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
As can be seen in Table 8, it was determined that the number of metaphors produced by students for each developed country and the overall total showed a statistically significant difference by year.

\[
\chi^2_{\text{US}} = 112.46, \chi^2_{\text{UK}} = 69.66, \chi^2_{\text{Germ.}} = 54.69, \chi^2_{\text{Can.}} = 62.35, \chi^2_{\text{Fren.}} = 56.26, \chi^2_{\text{Aust.}} = 22.25, \chi^2_{\text{Jap.}} = 16.85, \chi^2_{\text{Total}} = 145.54; p < 0.05.
\]

Based on the paired comparisons made to determine the source of the difference, it was concluded that there was a gradual increase in the total number of metaphors produced each year for the US, the UK, Germany, and France. Likewise, the number of metaphors regarding Canada, Australia, and Japan increased year-by-year, but there was no significant increase between the first and second years for Canada, and between the first and second, and between the third and fourth years for Japan and Australia. The findings revealed that the number of metaphors produced by the students increased regularly as the years progressed.

Results of the Friedman test applied to determine whether the number of metaphors produced by teachers about developed countries differ by year are presented in Table 9.

<table>
<thead>
<tr>
<th>Country</th>
<th>Test</th>
<th>N</th>
<th>Mean rank</th>
<th>SD</th>
<th>( \chi^2 )</th>
<th>( p )</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The USA</td>
<td>1</td>
<td>38</td>
<td>2.25</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>38</td>
<td>2.36</td>
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</tr>
<tr>
<td></td>
<td>3</td>
<td>38</td>
<td>2.57</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>38</td>
<td>2.83</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The UK</td>
<td>1</td>
<td>38</td>
<td>2.29</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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<td></td>
<td>2</td>
<td>38</td>
<td>2.39</td>
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<td></td>
<td>3</td>
<td>38</td>
<td>2.61</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>38</td>
<td>2.71</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Germany</td>
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<td>38</td>
<td>2.16</td>
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<td>2.53</td>
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<tr>
<td></td>
<td>3</td>
<td>38</td>
<td>2.63</td>
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<tr>
<td></td>
<td>4</td>
<td>38</td>
<td>2.68</td>
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<tr>
<td>Canada</td>
<td>1</td>
<td>38</td>
<td>2.38</td>
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<td></td>
<td></td>
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<td>2.49</td>
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<tr>
<td>France</td>
<td>1</td>
<td>38</td>
<td>2.43</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>38</td>
<td>2.53</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>38</td>
<td>2.54</td>
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</tr>
<tr>
<td></td>
<td>4</td>
<td>38</td>
<td>2.70</td>
<td></td>
<td></td>
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<tr>
<td>Australia</td>
<td>1</td>
<td>38</td>
<td>2.25</td>
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<td></td>
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<td>2.41</td>
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</tr>
<tr>
<td></td>
<td>4</td>
<td>38</td>
<td>2.72</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Japan</td>
<td>1</td>
<td>38</td>
<td>2.33</td>
<td></td>
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<td>38</td>
<td>2.43</td>
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<td></td>
<td>3</td>
<td>38</td>
<td>2.59</td>
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<td></td>
<td>4</td>
<td>38</td>
<td>2.64</td>
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</tr>
<tr>
<td>Total</td>
<td>1</td>
<td>38</td>
<td>1.91</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>38</td>
<td>2.30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>38</td>
<td>2.72</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>38</td>
<td>3.07</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As can be seen in Table 9, the number of metaphors produced by teachers for the USA, Germany, and Australia as well as the overall total showed a statistically significant difference on an annual basis.
On the basis of the paired comparisons to determine the source of the difference, the number of metaphors produced in the fourth year for the US was significantly higher than the number of metaphors produced in the first two years, and for Germany and Australia, the number of metaphors produced in the third and fourth years increased significantly. Considering the total number of metaphors, the number of metaphors increased from the previous year, except for the first and second years. However, the number of metaphors produced by teachers for the UK, Canada, France, and Japan did not show a statistically significant difference over the years.

The results of the Kruskal Wallis test applied to find out whether the quantity of metaphor production by the students differed according to their socioeconomic level are presented in Table 10.

Table 10. Results of the Kruskal Wallis test applied to find out whether the number of metaphors produced by students differ by socioeconomic level.

<table>
<thead>
<tr>
<th>Test</th>
<th>Group</th>
<th>N</th>
<th>Mean rank</th>
<th>SD</th>
<th>Chi-square</th>
<th>p</th>
<th>Differences</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Lower</td>
<td>23</td>
<td>31.78</td>
<td></td>
<td>1.05</td>
<td>0.59</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>21</td>
<td>35.31</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Upper</td>
<td>22</td>
<td>33.57</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Lower</td>
<td>23</td>
<td>29.26</td>
<td></td>
<td>2.58</td>
<td>0.28</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>21</td>
<td>37.05</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Upper</td>
<td>22</td>
<td>34.55</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Lower</td>
<td>23</td>
<td>27.91</td>
<td></td>
<td>5.30</td>
<td>0.08</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>21</td>
<td>40.64</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Upper</td>
<td>22</td>
<td>32.52</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Middle</td>
<td>21</td>
<td>40.19</td>
<td>2</td>
<td>3.96</td>
<td>0.14</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Upper</td>
<td>22</td>
<td>31.18</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

When the results of the Kruskal Wallis test in Table 10 are examined, it can be seen that the total number of metaphors produced by the students in the first, second, third, and fourth years did not show statistically significant differences according to socioeconomic level (p > 0.05). In other words, it can be said that the SES level had no effect on the number of metaphors produced by students. The results of the Kruskal Wallis test applied to see whether the number of metaphors produced by the teachers varied by professional seniority are provided in Table 11.

Table 11. The Kruskal Wallis test results indicating whether the number of metaphors produced by teachers differ by professional seniority.

<table>
<thead>
<tr>
<th>Test</th>
<th>Group</th>
<th>N</th>
<th>Mean rank</th>
<th>SD</th>
<th>Chi-square</th>
<th>p</th>
<th>Differences</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>0-5 years</td>
<td>9</td>
<td>29.72</td>
<td></td>
<td>15.52</td>
<td>0.00*</td>
<td>21+ years &lt;6-10 years, 21+ years &lt;0-5 years, 16-20 years &lt;0-5 years, 11-15 years &lt;0-5 years</td>
</tr>
<tr>
<td></td>
<td>6-10 years</td>
<td>8</td>
<td>20.50</td>
<td>4</td>
<td>15.52</td>
<td>0.00*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11-15 years</td>
<td>9</td>
<td>19.28</td>
<td>4</td>
<td>9.47</td>
<td>0.04*</td>
<td>21+ years &lt;0-5 years, 11-15 years &lt;0-5 years</td>
</tr>
<tr>
<td></td>
<td>16-20 years</td>
<td>7</td>
<td>13.71</td>
<td>4</td>
<td>9.47</td>
<td>0.04*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>21+ years</td>
<td>5</td>
<td>8.00</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>0-5 years</td>
<td>9</td>
<td>27.56</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6-10 years</td>
<td>8</td>
<td>22.00</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11-15 years</td>
<td>9</td>
<td>16.78</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>16-20 years</td>
<td>7</td>
<td>15.36</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>21+ years</td>
<td>5</td>
<td>11.70</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
When the results of Kruskal Wallis test in Table 11 are examined, it can be seen that the number of metaphors produced by teachers according to their professional seniority show statistically significant differences in the first, second, and third years. ($p_1 = 0.00; p_2 = 0.04; p_3 = 0.02; p < 0.05$).

The nonparametric paired comparisons made to determine the source of the difference showed that the number of metaphors produced by teachers with professional seniority between 0-5 years in the first year was higher than the number of metaphors produced by teachers with 11-15 years, 16-20 years, and 21 years or more of seniority. Based on another paired comparison for the first year, it was concluded that the number of metaphors produced by teachers with seniority between 6-10 years was higher than the number of metaphors produced by teachers with seniority of 21 years and over. The paired comparisons of the total number of metaphors produced in the second year indicate that the number of metaphors produced by teachers with professional seniority between 0-5 years is higher than the number of metaphors produced by teachers with 21 years or more of seniority. The paired comparisons made for the third year to determine the source of the difference reveal that the number of metaphors produced by teachers with professional seniority between 0-5 years is higher than the number of metaphors produced by teachers with professional seniority of 11-15 years, 16-20 years, and 21 years or higher. However, when the results of Kruskal Wallis test in Table 11 are examined, it is clear that the number of metaphors produced by teachers does not differ in a statistically significant way by professional seniority for the fourth year ($p > 0.05$). In other words, there were a similar number of metaphors produced by teachers in the fourth year.

**DISCUSSION**

By way of metaphor, the current study analyzed the images of developed countries that were on the minds of secondary school students and social studies teachers who were followed through a longitudinal study located in a metropolitan city within Turkey. The findings offer important insights into both the participants’ images of specific developed countries as well as the process of metaphor production in general. The countries that the students and teachers held the most negative images of were France, the United Kingdom, and the United States. On the other-hand, metaphors produced by participants for Canada, Australia, and Japan were very positive.

As part of this study, one student from each socioeconomic level SES group (e.g., lower, middle, upper) along with the metaphors produced by each students’ social studies teacher were compared individually. As a result, it was determined that there were similarities in the perceptions of the teachers and their students towards specific countries (e.g., the US, the UK, and France). For example, the teacher for the students in the middle SES group described the US as a harmful country in each of the four metaphor production installments over the four years of the study. This particular teacher appeared to associate the United States with the ideas of insatiable adolescent, spoiled child, tsunami, and hungry wolf, while this teachers’ students associated the US with the concept of the wolf in the Little Red Riding Hood fairy tale, a tick, virus, parasite, big shark, bad boy, or stepmother.
Similarly, the students of the teacher who described the UK as a ruling country created similar images about the UK. For the four years of the study activity instalments, the teacher produced his metaphor for the UK using the concepts of screenplay writer, brain, male lion, or chairman of a company. All concepts that created the idea of the UK as being controlling or in-charge/bossy. The students of this teacher produced metaphors about the UK using the ideas of writer, school principal, mother, father, coach, queen bee, and sculptor. Undoubtedly, many variables such as culture, political-social relations, family, political-religious groups, media, educational policy, and so forth can play a role in shaping someone’s mental image of a country. Piaget and Weil (1951) state that perceptions of different countries or social groups are formed between the ages of 7 to 11. Augoustinos and Rosewarne (2001) assert that from age eight, students begin to create their own value judgments and their own thinking systems. In addition, according to the CDT, at some point students begin to move away from their families and ultimately form their own social networks especially within their school or peer groups (Choudhury et al., 2006). Pike and Barrows (1979) state that teacher attitudes and perceptions affect students very easily and are one of the most influential factors in shaping students’ perceptions regarding countries. Therefore, teacher perception is an important factor that can have an impact on their students. However, further comprehensive research is needed in order to make a more concrete assertion regarding the effect of teacher perceptions on students.

As a result of the metaphors provided by the participants in this study, it can be concluded that the US, the UK, and France are generally imagined as powerful, knowledgeable, executive, and harmful to the people of other countries’. A deeper analysis of the metaphors produced by participants revealed that the political, economic, and military tensions experienced throughout history are particularly influential in forming the basis of negative perceptions regarding France and the UK. It can be said that the war between France and the UK in World War I, and other tensions with Muslim countries may be a contributing factor to the formation of negative images by Turkish students and teachers. Previous research findings have clearly established that political tensions and wars are very quickly reflected in-group perception (Chandra, 1967; Child & Doob, 1943; Diab, 1962, 1963; Dudycha, 1942; Gilbert, 1951; Karakuş & Aşçı, 2018; Meenes, 1943; Sinha & Upadhyay, 1960; Yılmaz & Yiğit, 2010). Also, Child and Doob (1943) state that people’s perceptions of countries that are allied with their own country are generally positive, and perceptions of those fighting on the opposite side are generally negative. The perceptions of France and the UK in the current study can be considered as such. For example, in 2018 when the history of World War I was taught in the social studies courses, the students’ negative perceptions towards France and Britain increased coincidentally. There may be a variety of reasons that underlie Germany’s somewhat more positive image than those of other European countries. The presence of more than 3 million Turkish people living in Germany, having better trade relations with Germany than other European countries as well as the fact that Turkey and Germany sided together during World War I, may play a role in the more favourable view of Germany.

Many characteristics attributed to various countries that were determined in previous studies have also been identified in this present study. For example, among the characteristics identified were: the UK and France are believed to have harmed and exploited other countries (Diab, 1962, 1963; Karakuş & Aşçı, 2018; Yılmaz & Yiğit, 2010); Germany has been seen as powerful, disciplined, and knowledgeable; the US viewed as powerful; and the UK as selfish and powerful. In addition, the image of the French being conceited and hypocritical has also been identified in other studies (Diab, 1962, 1963).

The data analysis also revealed that the metaphors produced by students increased regularly for each country. For example, for the US, only 4.5% of students produced valid metaphors in 2015, while in 2018, during the final instalment of the study, 85% of students produced valid metaphors about the US. In 2015, only 4.5% of all the participating students were able to produce valid metaphors for the UK, but this rate increased to 20% in the following year. In 2017, 42% of the students, and in 2018 (the final year of secondary school), 56% of the students were able to produce valid metaphors regarding the UK. Based on this finding, it can be said that there is a strong
relationship between metaphor production and age. It was also observed that the metaphors produced by the students became more sophisticated and advanced over the years. Siltanen (1990) and Özçalışkan (2007) state that adolescents explain metaphoric sentences in more detail, and that they can apply different perspectives regarding any similarities between target and source domains. Previous research findings (Białecka-Pikul, 2010; Dent, 1987; Glicksohn & Yafe, 1998; Noveck, Bianco, & Castry, 2001; Özçalışkan, 2007; Siltanen, 1990; Winner et al., 1976) suggest that metaphorical thinking develops with age. However, these studies usually focus on the process of understanding and explaining some predetermined metaphorical sentences. Evidently, the production aspect of the metaphorical thinking has largely remained neglected in the metaphor research literature. In this sense, it can be argued that the longitudinal analysis presented here showing the change between the participants’ metaphor production process and time offers some crucial and new insights into the process of metaphor production.

When the ratio of metaphors produced by all the teachers was examined, a gradual increase in the number of metaphors produced was evident (except France). However, this increase was not as high as that of the students. The teachers produced the most valid metaphors for the US, Germany, and the UK. While 53% of the teachers produced valid metaphors for the US in 2015, this ratio increased to 81.5% in 2018. The case for France is slightly different. In 2015, 29% of the teachers were able to produce valid metaphors for France, while in 2016 this ratio decreased down to 24%. Also, there was a gradual increase for the other countries. The longitudinal increase in student metaphors can be explained by an increase in the students’ cognitive growth as well as an increase in their overall knowledge about other countries. The data analysis also revealed that the teachers produced more metaphors for each country at the beginning of the study than the students did. This can be explained by the fact that teachers had completed their cognitive development, were knowledgeable about the developed countries in question (because these teachers are the primary people to teach these students), and were likely to be more familiar with the process of metaphor production.

Another interesting finding of the study was obtained by examining the metaphors produced by the teachers in terms of professional seniority. In a way, teacher professional seniority can provide a clue about the possible age of the teacher. For example, a teacher in the early years of the profession may be considered younger, while those in their 20th year in the profession may be considered older. The findings showed that teachers produce better metaphors in terms of quantity and quality at a younger age. In addition, teachers with high professional seniority mostly create one-way metaphorical relationships between the source and target domain. Three of the teachers with 21 years or more seniority could not produce any valid metaphors over the four years of research visits. Interestingly, it has been reported that there is a significant decrease in metaphoric thinking with age. Mashal, Gavrieli, and Kavé (2011) argue that this may be explained by a decrease in the brain function of older adults.

The analyses revealed no significant relationship between the students’ socioeconomic status and their level of metaphor production. Although SES may not be a factor in students’ metaphor production, it may still affect the quality of metaphors produced. Some differences between upper SES group and the lower and middle SES groups were identified by the analyses. Some students in the upper SES group formed their metaphors based on individual experiences especially for countries they had visited. For example, a student in the upper SES, presenting the US in the multicultural category, made metaphorical statements about the different religions and races he saw in New York. Another student in the upper SES produced his metaphor considering the experiences he had in Paris. Thus, the SES level seems to play a key role in terms of enabling personal experiences in producing metaphors. Lakoff and Johnson (2005) underscore the importance of “direct physical experience” in metaphorical thinking as well. Similar findings were obtained in a recent study that examined the affective perspectives of 8th grade students regarding various countries (Karakuş & Aşçı, 2018). In this present study, whereas the students in the upper SES group responded more individually, social emotions predominated the country perceptions of the students in the lower SES group. It can be argued that the students in the lower and middle SES groups form their mental images according to cultural norms.
and these images can tend to be more negative than those gained from personal experiences. In addition, many stereotypes were identified in the analysis of images of these specific countries. Previous research also supported the finding that various stereotypes form at an early age (e.g., students) and continue to be formed into adulthood (e.g., teachers) (Diab, 1962, 1963; Gilbert, 1951; Sherif & Sherif, 1956).

When examining the analysis results it may be important to consider that the order of the countries in the metaphor booklet utilised in the data collection may have affected the metaphor production of the participants. The number of metaphors for countries on the first page, such as the US (students: n= 111; teachers: n= 99), Germany (students: n= 71; teachers: n= 110), and the UK (students: n= 81; teachers: n= 96) was found to be higher. On the other hand, the number of metaphors for Japan (students: n= 34; teachers: n= 77) and Australia (students: n= 18; teachers: n= 47) was significantly lower. The fact that the participants may have been bored with the activity on the later pages, and as a result, strayed from the pattern of metaphorical thinking pattern could have contributed to there being fewer metaphors being provided for the countries listed on the latter pages. Actually, this may have occurred even more with the teachers than the students. It would be incorrect to state that the placement of Australia later in the metaphor booklet a decisive reason for fewer student responses because many students reported not knowing much about Australia in general. As a result, the lack of student metaphors regarding Australia may be related to limited knowledge by students, especially considering the young age of the students (Child & Doob, 1943). Previous studies also indicate that metaphoric thinking is related to children’s familiarity and knowledge of a subject (Keil, 1986; Mashal et al., 2011; Siltanen, 1990). Haas and Clary (1985) compared 4th and 8th grade students’ knowledge of various countries and determined the level of knowledge of 8th grade students was higher than the 4th graders. It can be said that the findings of Haas and Clary (1985) are consistent with the findings of this current study; for example, no metaphors could be produced for Australia in 2015 when the students were in 5th grade, while 12 valid metaphors were produced later in 2018 when the students were in 8th grade. In the process of producing metaphors, knowledge accumulation is more important than the process of understanding and explaining metaphors because other words within the metaphorical sentences can provide various clues about the individuals in terms of meaning for understanding and explaining their metaphor. However, in the process of producing a metaphor, there is no clue as to how the person will create his/her metaphor. Therefore, it can be postulated that knowledge accumulation is a more important factor in the production of original metaphors.

Another interesting finding from the current study relates to the effect of daily political discourse and media on shaping the metaphors of both teachers and students. Media exposure appears to be quite influential in shaping the views of both secondary school students, who are labelled as “digital natives” by Prensky (2001), and the teachers who are labelled as “digital nomads.” The recent case involving Reverend Andrew Brunson, and President Donald Trump’s political discourse was reflected in participants metaphors produced about the US. France, Germany, The US, and the UK receive a higher percentage of coverage than other countries in the Turkish media due to the political, commercial, and cultural relations that between these countries and Turkey. Previous studies report that countries that have more coverage in the media are usually more advantageous in terms of country image (Sierp & Karner, 2017; Yılmaz & Yiğit, 2010). Pike and Barrows (1979) point out that the media is very influential in creating a positive image of a country. Akpınar (2006) states that Turkish school curriculum offers very limited information to students about other countries around the world, and as a result, especially primary and secondary school students compensate for this information deficiency by relying on the media for a large part (82.3%) of their information. Therefore, the limited effect of the media on the participants knowledge regarding Australia and Japan may have played a part in the low number of metaphors created for those two countries.

**CONCLUSION**

The results of this study have shown that the use of metaphors can be a reliable data collection tool when investigating perceived images and/or stereotypes. This current study is one of the first
studies to have examined both the perceived images of countries along with the process of metaphor production. To obtain more comprehensive and generalizable results, future studies should include larger participant groups, differing school types, and a variety of educational levels. In addition, similar research can be conducted in different countries in order to make comparisons and reveal stereotyping patterns that may exist. Considering what we perceive as an inadequacy of studies in the literature relating to the metaphor production process, the findings of this current study can play an important role in filling gaps in this research area as well as creating continued awareness and attention regarding the metaphor production process. Children’s knowledge, grammar competence, vocabulary knowledge and production, age, and other factors such as intercultural transfer can play a key role in their comprehension of metaphoric sentences (Siltanen, 1986, 1990; Steen, 2008; Vosniadou, 1989). It is also very important to remember that metaphor production is multidimensional, and as a result, future research designs should focus on investigating a variety of factors that may affect metaphor production such as knowledge of the metaphor production process, resources of available information, grammar competence, vocabulary size and repertoire, environmental and cultural stimuli, cognitive development levels, and the effect of the media and educational environment.

**Limitations**

Following the completion of this longitudinal study, the researchers have determined there to be two limitations. First, the study was carried out with a relatively small sample size (e.g., \( n=104 \) participants, 66 students & 38 teachers). As a result, this participant sample cannot be seen as completely reflecting the general views of all Turkish people (nor does it have such a purpose to do so). However, this study does make an important contribution to the field because it highlights developmental and cognitive changes that can occur in regards to the perceived image of countries as well as to the process of metaphor production. The second limitation recognised by the researchers relates to the data collection methodology and in particular the research tool that was utilised. For example, in this study, the country images that existed in the minds of the students and teachers investigated were identified through the use of metaphors during data collection activities that took place during research visits over a four-year period. However, if one-on-one interviews would have been held with individual participants following each metaphor production stage, then the potential for gathering more detailed and comprehensive information would have been greater. As a result, the researchers may have better accessed the participants’ perceptions regarding their images of developed countries as well as how they understood and carried out the metaphor production process. In the end, it is clear that when conducting future studies in regards to perceived image and metaphor production, particular attention should be placed on the use of detailed one-on-one participant interviews in order to potentially gain further insight into the participants perceived images as well as their metaphor production process.

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Exploring The Relationship between Professional Development Attitudes, Activities and Self-Directed Learning Readiness of EFL Instructors

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Abstract

With regard to gender, the research study aims to investigate the relationship between instructors’ engagement in professional development activities, their attitudes towards professional development, and their readiness for self-directed learning. The study is designed in both correlation model and descriptive comparative model. The research sample is composed of 271 instructors of the English language working at state universities in Ankara. To collect the data, three questionnaires which are the scale of continuous professional development activities developed by De Vries et al. (2013), the attitude about professional development scale developed by Torff et al. (2005), and the self-directed learning readiness scale developed by Fisher et al. (2001) are used. SPSS 22 is used to analyze data and the results indicated that the level of participation of instructors in continuous professional development activities is not high. Besides, collaborative activities are the least preferred ones while reflective activities are the most preferred ones. The analysis of results also shows that the instructors have positive attitudes towards professional development while their attitudes did not differ significantly in terms of gender. Finally, it has been found that instructors’ levels of self-directedness are high and it does not differ significantly in terms of gender, the attitudes towards professional development activities, and self-directed learning readiness together exhibited a significant relationship with participation in all continuous professional development activities.

Keywords: Professional Development Attitudes, Professional Development Activities, Self-Directed Learning Readiness

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INTRODUCTION

Changes take place in all areas of human life, especially in the information society. Also, there is this change in education structures and instructors (Avalos, 2011) and teaching staff need to adjust to this change as well. The rapid transition is taking place, along with the enhancement of the professional development activities of instructors (Irgatoglu, 2017).

Considering the rapid changes that also affect the field of teaching English as a foreign language (EFL), professional development focuses on universities all over the globe to serve the needs of instructors who pursue the latest developments in the region (Liyanage & Bartlett, 2008). This issue is particularly crucial in Turkey, especially for the preparatory schools of universities (Unal, 2010).

Despite innovative education systems at universities, continual learning or development continue to be critical for instructors as the structure of teaching is changing (Balcoglu, 2010). The instructors need to update their knowledge with new techniques and approaches so that they can remain up to date and competent even though it may be difficult to apply new ideas and concepts in their classrooms. Foreign language instructors in Turkey are to claim information required to adapt in addition to the changes in their field and are expected to refresh themselves continuously (Unal, 2010).

Gaining competence is important to achieve constant learning. To remain competent, appropriate competencies must be acquired. To become capable and increase their awareness of innovations, instructors ought to pay attention to the continuous self-development because a language instructor must be apt in using the language and understand innovations within the field (Liyanage & Bartlett, 2008). It's a change in professional development that reflects these innovations. Therefore, the promotion of better techniques also seems a matter of concern to many instructors and experienced linguists in the twentieth century; (Richards & Rodgers, 2001, p.11). Thus, an ongoing process of professional development is needed to make them more professional to get the benefits better (Irgatoglu, 2017).

Teaching, as a profession, is comprised of a series of personal and professional experiences. Furthermore, innovations in the field of teacher education take the expertise, skills, and behaviours necessary to provide an essential piece of teacher training and professional development are clarified individually and as a social activity, so the formation of both schools and the quality of teachers and student achievement can boost learners’ development (Opfer et al., 2011). Hence, enhancing the quality of education is the key factor in the fact that an instructor should develop themselves at all stages in their professional lives (Guskey, 2000).

To improve the learning process, instructors are involved in professional development activities that play an important role. Guskey (2002) indicates in a report that instructors’ professional development is a key factor contributing to enhancing the quality of education through the support of teacher competence. According to many scholars (Guskey, 2002; Putnam & Borko, 2000), systematic professional development activities, are one of the main factors for growing the quality of instructors and student achievements. The development of education needs to be able to achieve some progress in learning. If professional development is structured and responsive to the needs of teachers and students, then a real change will take place. Change is important in the concept of implementing quality. It is a key element that is needed to provide a comprehensive approach to teacher professional development.

A significant number of master's and doctoral research have been carried out over the last few decades on the needs of foreign language teachers in Turkey for professional development and its practical implementation (Baykal, 2019; Muhammad, 2019; Korkmaz, 2015; Korkmazgil, 2015; Yagci, 2014; Muyan, 2013;). There is, however, no research exploring the relationship between professional development attitudes, activities, and self-directed learning readiness. A variety of research studies have also confirmed both the efficacy and relevance of professional development in
Turkey (Balcıoğlu, 2010; Ünal, 2010; Personn, 2014; Dikilitaş, 2013). The importance of professional development activities is crucial as some issues are considered, such as recent developments in the field, design, and assessment of the curriculum, and finally being reflective.

When the professional development practices in Turkey and the world are compared, the ones in Turkey are reported to be carried out in the form of training. Therefore, the professional development activities in Turkey are not as qualified as expected. This situation negatively affects teachers' attitudes and perceptions about professional development activities (Bozkurt et al., 2012). However, one of the most important factors in the emergence of a behavior is the attitude that leads to the emergence of that behavior. When the current situation is taken into consideration, it can be claimed that the shape and nature of the professional development activities affect the professional development attitudes negatively (Bozkurt et al., 2012).

A lot of studies have been conducted on professional development which reveals the importance of this issue (Ünal et al., 2011; Avalos, 2011; Hadar & Brody, 2010). As can be seen in the aforementioned studies, the instructors' attitudes of professional development influence their engagement in those activities which are important for improving language education quality. This research is therefore intended primarily to analyze the relation between teacher engagement in professional development, their attitudes to professional development, and their readiness to learn in terms of gender.

In general, it depends on the standard and efficiency of education to advance and survive every society. Every country needs motivated and successful instructors as a cornerstone of education, so it can educate and prepare its young people for a better future in line with its education system (Torabi et al., 2013). But the lack of effective, skilled human capital is one of the current challenges of the education system. Training on-the-job and pre-employment training have shown their inability to cause major improvements in education systems. Undoubtedly, teachers concerned with their problems and failures cannot be expected to use all their resources and understanding to learn the correct methods of teaching. Therefore, a new approach must be introduced in the process of teacher training that will eventually lead to successful lessons, which ensures that teachers do not anticipate passive learning, but take the initiative in learning and are responsible for themselves (Torabi et al., 2013). As a suggestion, it is indicated that self-directed learning refers to a phase in which the learner starts, prepares, executes, and tracks his learning at various stages. Self-directed learning has been considered as the concurrent controller of adjustments amongst teachers and students, and self-directed learning is assumed to set targets, decide on learning and assess learning (Nadi & Kazemi, 2003).

Self-directed learning requires activities where people are not beyond control and the learning processes are handled by themselves. The educational setting of the teachers is expected to help the professional development of teachers. However, in reality, teachers should take care of their learning to improve professionally (Torabi et al., 2013). Students who enter education programs without autonomous learning abilities typically face stress or failure (Williamson, 2007). Therefore, in recent decades, improving self-directed learning skills has become one of the priorities of professional development. While teaching practices associated with self-directed learning are important, little research has been carried out on this subject up to now, but such investigations have recently increased: for example, Linares (1999) carried out a study on the relationship between learning style and self-directed learning. He observed that both groups of students and faculty members tended to have the converging style and that autonomous learning in both groups was strong. Nevertheless, the faculty members were more independent than the students. Linares showed that there was a substantial relationship between the self-directed readiness to learn and learning styles.

For the individual to gain self-directed learning skills, it is necessary to be ready first. For this readiness, some cognitive, affective, and psychomotor behaviors, which are prerequisites, must be gained by the individual. These behaviors, which are necessary for individuals to learn on their own, are known as readiness to learn on their own. self-directed readiness is defined as the level of having
the tendencies, abilities, and personal characteristics necessary for an individual to acquire self-directed learning skills (Fisher, et al. 2001). Readiness for self-directed learning is also one of the most important inputs of the self-directed learning process (Kelly & Boyer, 2005). There are many variables such as personal characteristics, abilities, attitudes towards learning, cognitive and affective competence of the individual that affect self-directed learning readiness. (Fisher, et al., 2001). These variables are; education level, personal characteristics, learning style, life satisfaction, health status, self-management, critical thinking and awareness, academic achievement motivation, self-efficacy, and taking on own learning responsibilities (Reio, 2004). When evaluated, readiness for self-directed learning offers the individuals excellent opportunities to learn (Fisher et al., 2001). In terms of these features, it can be considered to be an important feature for professional development. Readiness for self-directed learning is important for instructors to take advantage of both individual and organizational learning opportunities.

Also, in Turkey in recent years, both in research as well as the National Education Council's 2017-23 mission and vision document of the importance of professional development indicates that the subject stands out noticeably. Factors affecting instructors' participation in professional development, which is one of the cornerstones of quality in education, should be reviewed in different education systems. The participation of instructors' professional development training in Turkey is not mandatory except for some services (Bümen et al., 2012). In this respect, professional development is mostly done with individual efforts. When evaluated in this context, it is thought that teachers' attitudes towards professional development and individual characteristics such as self-directed learning readiness are important for professional development (Liu et al., 2014).

When the participation of instructors in professional development activities is evaluated in the context of the variables of this study, the significant contribution of self-directed learning to participate in professional development and individual and organizational learning has been emphasized in some studies (Ellinger, 2004; Liu, et al., 2014). It is known that the attitude towards professional development also has an important potential in ensuring participation in professional development and making professional development a priority (Ndlovu, 2014; Muzaffar & Malik, 2012). The nature of professional development and the professional development of instructors are becoming more important day by day. Since in Turkey, the professional development of instructors depends on more individual efforts than teacher training activities designed by teacher trainers. Besides, the professional development of instructors is not sufficiently supported and sufficient opportunities are not provided (Bümen et al., 2012). These systemic problems both prevent instructors from participating in professional development activities and negatively affect the quality of professional development. In this context, it is thought that evaluating these variables, which are thought to have a relationship with the participation in professional development activities, with a holistic perspective will make a significant contribution to the efforts to increase the quality of education. Also, examining some of the demographic characteristics of instructors such as gender will enable the definition of lecturer profiles regarding their professional development. Defining these profiles will provide important data in the process of developing professional development policies and practices. The fact that this research includes a large number of data collection tools and data analysis methods, emphasizing a holistic approach to participation in professional development activities, makes the study valuable. In this context, self-directed learning readiness mediation analyses, which are related to individual learning, whose relationship with participation in professional development is partially revealed, includes the current analysis technique.

This study aims to examine the relationship between instructors' participation in professional development activities, their attitude towards professional development, and self-directed learning readiness, in terms of gender. To achieve these goals, the following research questions are stated:

1. What is the level of participation of instructors in professional development activities? Does the participation of instructors in professional development activities differ in terms of gender?
2. What are the instructors' attitudes towards professional development? Do instructors' attitudes towards professional development differ significantly in terms of gender?

3. What is the self-directed learning readiness level of the instructors? Does the level of readiness of instructors for self-directed learning differ significantly in terms of gender?

4. Is there a correlation among sub-dimensions of epistemological beliefs and teaching approaches?

METHODOLOGY

Research Design

Regarding gender, the research study aims to investigate the relationship between teachers' engagement in professional development activities, their attitudes towards professional development, and their readiness for self-directed learning. The study is designed in both correlation model and casual comparative model.

The Participants

The research sample is composed of 271 instructors of the English language working at state universities in Ankara.

Table 1. General Characteristics of the Participants

<table>
<thead>
<tr>
<th>Age</th>
<th>Gender</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>20-30</td>
<td>31-40</td>
<td>41-50</td>
<td>51-60</td>
</tr>
<tr>
<td>65</td>
<td>65</td>
<td>69</td>
<td>72</td>
<td>132</td>
</tr>
<tr>
<td>Percentage</td>
<td>24%</td>
<td>24%</td>
<td>25.4%</td>
<td>26.6%</td>
</tr>
</tbody>
</table>

As shown in Table 1, 65 of the participants (24%) were aged between 20-30, 65 of them (24%) were aged between 31-40, 69 of them (25.4%) were between 41-50 and 72 of them (26.6%) were 51-60. 132 (49%) of the participants were females, while 139 (51%) of them were males.

Data Collection

To collect the data, three questionnaires which are the scale of continuous professional development activities developed by De Vries et al. (2013), the attitude about professional development scale developed by Torff et al. (2005), and the self-directed learning readiness scale developed by Fisher et al. (2001) are used.

1. Continuous Professional Development Activities Scale (CPDAS): This survey was developed by De Vries et al. (2013). It includes forty items and three subscales, which are updating activities (11 items), reflective activities (13 items), collaborative activities (16 items). The Cronbach's alpha value for the scale was calculated as 0.796, indicating an acceptable level of reliability. The results are presented in Table 2.

2. Attitudes towards Professional Development Scale (APDS): It was developed by Torff et al. (2005). It is a 6-item tool. The Cronbach's alpha value for the scale was calculated as 0.784, indicating an acceptable level of reliability. The results are presented in Table 2.

3. Self-Directed Learning Readiness Scale (SDLRS): It was developed by Fisher et al. (2001). It is a 29-item tool including three subscales which are self-management (8
items), willingness to learn (10 items), and self-regulatory abilities (11 items). The Cronbach's alpha value for the scale was calculated as .925, indicating an acceptable level of reliability.

Table 2. Reliability analysis

<table>
<thead>
<tr>
<th>Variables</th>
<th>number of items</th>
<th>Cronbach’s alpha value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPDAS</td>
<td>40</td>
<td>.796</td>
</tr>
<tr>
<td>APDS</td>
<td>6</td>
<td>.784</td>
</tr>
<tr>
<td>SDLRS</td>
<td>29</td>
<td>.925</td>
</tr>
<tr>
<td>Total</td>
<td>75</td>
<td>.835</td>
</tr>
</tbody>
</table>

Data Analysis

SPSS 22 is used to analyze data.

RESULTS

The Participation in Continuous Professional Development Activities

Within the scope of the first research problem, it was aimed to determine the level of participation of instructors in continuous professional development activities. The arithmetic mean and standard deviation from descriptive analyses were used to determine the level of participation in professional development activities. The results are given in Table 3.

Table 3. The Level of Participation in Continuous Professional Development Activities

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Updating activities</td>
<td>3.00</td>
<td>.46</td>
<td>1.00</td>
<td>4.00</td>
</tr>
<tr>
<td>Reflective activities</td>
<td>3.10</td>
<td>.53</td>
<td>1.00</td>
<td>4.00</td>
</tr>
<tr>
<td>Collaborative activities</td>
<td>2.73</td>
<td>.60</td>
<td>1.00</td>
<td>4.00</td>
</tr>
</tbody>
</table>

As can be seen in Table 3, the mean of the updating activities is 3.00, the standard deviation is .46. The mean of the reflective activities, the ones that instructors participate in most frequently, is 3.10. The mean score of the collaborative activities, which are the least participated in professional development activities, is 2.73. The mean of the total scale is 2.94, and its standard deviation is .53. When the results are analyzed, it can be inferred that the level of participation of instructors in professional development activities is not high. Besides, collaborative activities are the least preferred ones while reflective activities are the most preferred ones.

Gender Differences

To see whether there are any gender differences in terms of the sub-dimensions of CPDAS, a t-test was used.

Table 4. T-Test Results regarding gender differences in CPDAS

<table>
<thead>
<tr>
<th>Items</th>
<th>Gender</th>
<th>f</th>
<th>m</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Updating activities</td>
<td>female</td>
<td>132</td>
<td>2.98</td>
<td>1,107</td>
<td>.138</td>
</tr>
<tr>
<td></td>
<td>male</td>
<td>139</td>
<td>3.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reflective activities</td>
<td>female</td>
<td>132</td>
<td>3.30</td>
<td>-2.709</td>
<td>.013*</td>
</tr>
<tr>
<td></td>
<td>male</td>
<td>139</td>
<td>2.90</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collaborative activities</td>
<td>female</td>
<td>132</td>
<td>2.75</td>
<td>-0.102</td>
<td>.214</td>
</tr>
<tr>
<td></td>
<td>male</td>
<td>139</td>
<td>2.71</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
As a result of the t-test conducted to test whether the participation of instructors in continuing professional development activities varies according to gender, a significant difference was found in favor of female instructors in the dimension of participation in reflective activities \([t(271) = -2.709, p < .05]\) according to the gender variable. While the mean score of female instructors’ participation in reflective activities is 3.30, it is 2.90 for male instructors. The findings show that female instructors participate in reflective activities more than males.

**The Attitudes Towards Professional Development**

Within the scope of the second research problem, it was aimed to determine the attitudes towards professional development. The arithmetic mean and standard deviation from descriptive analyses were used. The results are given in Table 5.

<table>
<thead>
<tr>
<th>Items</th>
<th>Gender</th>
<th>(f)</th>
<th>(m)</th>
<th>(t)</th>
<th>(p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Attitudes Towards Professional Development (APDS)</td>
<td>female</td>
<td>132</td>
<td>4.17</td>
<td>0.301</td>
<td>.634</td>
</tr>
<tr>
<td></td>
<td>male</td>
<td>139</td>
<td>4.21</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The average of instructors’ attitudes towards professional development is 4.19, and the standard deviation is .42. This finding is proof of the fact that they have positive attitudes towards professional development.

**Gender Differences**

To see whether there are any gender differences in terms of APDS, a t-test was used. The results are given in Table 6.

As a result of the t-test conducted, it was determined that instructors’ attitudes towards professional development did not differ significantly according to gender. That shows that both male and female instructors’ attitudes towards professional development are similar.

**The Self-Directedness**

Within the scope of the third research problem, it was aimed to determine the level of self-directed learning readiness of instructors. The arithmetic mean and standard deviation from descriptive analyses were used. The results are given in Table 7.

<table>
<thead>
<tr>
<th>Items</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-management</td>
<td>4.32</td>
<td>.48</td>
<td>1.00</td>
<td>5.00</td>
</tr>
<tr>
<td>Willingness to learn</td>
<td>4.41</td>
<td>.59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-regulatory abilities</td>
<td>3.99</td>
<td>.41</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As Table 7 suggests, the mean score of willingness to learn has the highest average among the other sub-dimensions while the self-regulatory habits have the least average. The findings show that instructors’ levels of self-directedness are high.
Gender Differences

To see whether there are any gender differences in terms of self-directedness, a t-test was used.

Table 8. T-Test Results regarding gender differences in SDLRS

<table>
<thead>
<tr>
<th>Items</th>
<th>Gender</th>
<th>f</th>
<th>m</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-management</td>
<td>female</td>
<td>132</td>
<td>4.33</td>
<td>-3.12</td>
<td>.231</td>
</tr>
<tr>
<td></td>
<td>male</td>
<td>139</td>
<td>4.31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Willingness to learn</td>
<td>female</td>
<td>132</td>
<td>4.40</td>
<td>-0.98</td>
<td>.311</td>
</tr>
<tr>
<td></td>
<td>male</td>
<td>139</td>
<td>4.42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-regulatory abilities</td>
<td>female</td>
<td>132</td>
<td>3.98</td>
<td>-4.31</td>
<td>.472</td>
</tr>
<tr>
<td></td>
<td>male</td>
<td>139</td>
<td>4.01</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As Table 8 shows, it was determined that the SDLRS did not differ significantly in terms of gender.

The Correlation among Professional Development Attitudes, Self-Directed Learning Readiness, and Professional Development Activities

To see the correlation among professional development attitudes, self-directed learning readiness, and professional development activities, correlation analysis was conducted. The results are presented in Table 9.

Table 9. The correlation among Professional Development Attitudes, Self-Directed Learning Readiness, and Professional Development Activities

<table>
<thead>
<tr>
<th>Self-Directed Learning Readiness</th>
<th>Attitudes towards Professional Development</th>
<th>Professional Development Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Directed Learning Readiness</td>
<td>1</td>
<td>.428*</td>
</tr>
<tr>
<td>Attitudes towards Professional Development</td>
<td>1</td>
<td>.269*</td>
</tr>
<tr>
<td>Professional Development Activities</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

*. Correlation is significant at the 0.05 level (2-tailed).

As can be understood from Table 9, there is a positive correlation between attitudes towards professional development and professional development activities (r = .269 p < .01). Also, self-directed learning readiness correlated with attitudes towards professional development (r = .428 p < .01) and professional development activities (r = .316 p < .01).

Multiple regression analysis was conducted to reveal how the variables of attitude towards professional development, and Self-Directed Learning Readiness predict instructors’ participation in all continuous professional development activities. Analysis results are shown in Table 10.

Table 10. Regression Analysis Results Regarding Participation in Professional Development Activities

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>St. Error</th>
<th>Beta</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>.389</td>
<td>.281</td>
<td>.234</td>
<td>5.498</td>
<td>.000*</td>
</tr>
<tr>
<td>Attitudes towards Professional Development</td>
<td>.269</td>
<td>.037</td>
<td>.397</td>
<td>8.414</td>
<td>.000*</td>
</tr>
<tr>
<td>Self-Directed Learning Readiness</td>
<td>.316</td>
<td>.032</td>
<td>.397</td>
<td>8.414</td>
<td>.000*</td>
</tr>
</tbody>
</table>

R = Correlation coefficient, R2 = Explained variance ratio, B = regression coefficient, Beta = standardized regression coefficient St. Error = standard error, sig = ** p <.01.
According to the results of multiple linear regression analysis, the variables of attitudes towards professional development activities, and Self-Directed Learning Readiness together exhibited a significant relationship \( (R = 0.598, R^2 = 0.36) \) with participation in all continuous professional development activities. These two variables together explain 36% of the change in instructors’ views regarding participation in professional development activities. According to the standardized regression coefficients (Beta), the relative importance order of the predictor variables on participation in professional development activities is Self-Directed Learning Readiness \( (= 0.397) \), and attitude towards professional development \( (= 0.234) \). Considering the significance of the regression coefficients, it is seen that all of the predictive variables are significant predictors of instructors’ participation in professional development activities. This finding shows that instructors’ Self-Directed Learning Readiness and attitudes towards professional development are both important in their participation in professional development.

**DISCUSSION**

In the modern world, language instructors are inevitably expected to develop themselves professionally because everything is changing and developing. Up to now, a lot of studies have been conducted on professional development (Baykal, 2019; Muhammad, 2019; Irgatoğlu, 2017; Korkmaz, 2015; Korkmazgil, 2015; Yaşan, 2014). However, this study is believed to contribute to the field since with regards to a certain variable as gender, it aims to investigate the relationship between instructors’ engagement in professional development activities, their attitudes towards professional development, and their readiness for self-directed learning.

To begin with, the present study indicated that, the level of participation of instructors in continuous professional development activities is not high. Also, collaborative activities are the least preferred ones while reflective activities are the most preferred ones. This finding is not in line with the previous studies which found out that teachers preferred to participate in updating and collaborative activities rather than in reflective activities (De Vries et al., 2013; Dijkstra, 2009). However, the findings of this study considering the level of participation in professional development activities which is not high is in line with a study conducted by Bellibaş & Gümüş (2016). Similarly, according to a study conducted by Ünlü & Sarıçoban (2019), the level of participation in PD activities was claimed to below. The reasons for perceiving them as obstacles to their involvement were their lifestyle, busy working schedule, and inefficiency of the trainers. Concerning gender, the results of the previous studies correspond to the findings of this study (De Brabander et al., 2011; Runhaar et al., 2010). Female instructors were substantially more interested in PD activities, especially reflective ones, in comparison with male instructors. This may be clarified by variations in the priorities of female instructors and males, which may affect their involvement in PD activities, mainly based on enhancing education skills and quality in teaching. (Scott, 2002).

The secondary aim of the present study was to find out the attitudes of instructors towards professional development regarding gender, and the analysis of results showed that the instructors had positive attitudes towards professional development while their attitudes did not differ significantly in terms of gender. The findings are in line with the results of studies conducted by Ünlü & Sarıçoban (2019) and Hürsen (2012). However, Hürsen (2012) claims that women have more positive attitudes towards PD than men. Additionally, regarding the findings, the results of the previous studies correspond to the findings of this study (Baykal, 2019; Muyan, 2013).

Within the scope of the third research problem, it was aimed to determine the level of self-directed learning readiness of instructors regarding gender. The analysis of data showed that the mean score of willingness to learn has the highest average among the other sub-dimensions while the self-regulatory habits have the least average. The findings show that instructors’ levels of self-directedness are high and it did not differ significantly in terms of gender. the results of the previous studies correspond to the findings of this study (Torabi et al., 2013; Shooshatizadeh et al., 2010; Gordanshekan et al., 2010; Nadi & Kazemi, 2003; Magdalena et al., 2005).
Finally, to find out the relation among professional development attitudes, self-directed learning readiness, and professional development activities, correlation analysis was conducted and a positive correlation between attitudes towards professional development and professional development activities was found. Also, self-directed learning readiness correlated with attitudes towards professional development and PD activities. Moreover, the attitudes towards professional development activities and self-directed learning readiness together exhibited a significant relationship with participation in all continuous professional development activities. These findings are in line with previous studies (Lopes & Cunha, 2017; Pekel, 2016; Liu et al, 2014).

CONCLUSION

As a result, although the participation levels of instructors in professional development activities are relatively high, it is seen that they are not at the desired level. Besides, the low average of cooperation activities that provide qualified professional development can be considered as an important deficiency in terms of both qualified professional development and professional development opportunities for teachers. Therefore, it appears that there are both quantitative and qualitative problems related to the professional development of instructors.

Although instructors' attitudes towards professional development are positive, it can be said that they are not at the desired level. The results of previous studies indicate that this is due to the instructors' previous inadequate professional development experiences. It can also be claimed that instructors' attitudes towards professional development do not differ according to their gender. It is thought that this situation is due to the confrontation of instructors with similar professional development experiences.

Instructors' high self-directed readiness levels are very valuable as they have the potential to contribute significantly to both individual and organizational learning and does not vary by gender. Therefore, it may contribute to the professional development of instructors.

All in all, instructors' readiness and perceptions play an important role in their participation in professional development activities, and it seems that instructors' participation in professional development should be supported. In this context, instructors' self-directed readiness level can be considered as a very important factor. Since their attitudes towards professional development affect their participation in professional development, the professional development experiences to be offered to instructors should have a structure that will have positive effects. So professional development should attract their attention.

REFERENCES


Effect of Augmented Reality-Based Reading Activities on Some Reading Variables and Participation in Class

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Hayati Akyol
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Abstract

The aim of this study was to examine the effect of augmented reality-based reading activities on reading comprehension, reading motivation, attitude towards reading and class participation of fourth grade elementary students, and to obtain the students’ views regarding this. The research was conducted with 54 fourth grade students attending two different classes of a state school with a medium socioeconomic level located in the city centre of the province of Kars during the autumn semester of the 2018-2019 academic year. The quantitative dimension of the study, in which a sequential explanatory mixed design was used, was carried out with a quasi-experimental design with pretest-posttest control group. In the qualitative dimension, however, opinions were obtained by means of semi-structured interviews following the implementation. The semi-structured process lasted for a total of 7 weeks, including a 1-week awareness programme and a 6-week implementation, and during this period, the implementation, which was related to augmented reality-based reading exercises, was carried out with the experimental group. In the control group, however, instruction based on the standard Turkish subject curriculum was carried out. The findings obtained from the quantitative dimension of the study revealed that there was a significant difference between scores of the experimental and control groups in reading comprehension, attitude towards reading, reading motivation and class participation, in favour of the experimental group. Moreover, in the qualitative dimension of the study, the interviewed students in the experimental group generally expressed positive views related to the augmented reality-based reading exercises. The students stated that they were able to use augmented reality easily, and that it had real-like, three-dimensional, entertaining and participative features. Furthermore, the students reported that as well as reading comprehension and reading attitude, it had an effect on their thinking skills, academic development and communication skills.

Keywords: Augmented Reality, Reading Comprehension, Reading Motivation, Reading Attitude, Class Participation

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* This study has been derived from the first author’s doctoral thesis completed at Gazi University Graduated Institute of Educational Sciences.

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INTRODUCTION

Reading is a complex process that influences an individual’s life and enables him to acquire intellectual, cultural and social competence (Keskin, 2012). A good reader is an individual who can use his prior knowledge, who recognises sounds and words, who can read strategically and fluently, who has positive sensory characteristics and vocabulary, and who can achieve comprehension (Zipke, 2007). Comprehension, which is one of the variables that affect the reading process, is the fundamental point on which the reading process is focused (Ülper, 2010, p.4), since the aim of reading is to grasp the meaning given in the text (Gunning, 2008, p.1). A reader with well-developed comprehension skill identifies the aim and topic of the text that he reads, knows the meanings of words, finds the main and supporting ideas, and reaches conclusions (Güneş, 2000). For individuals to be able to realise these skills, they need to possess a positive attitude towards reading (Wang, 2000). Students’ reading attitudes affect the time they spend reading and the development of their reading skills (Martinez, Aricak & Jewell, 2008). Another affective variable, which is as important as attitude in the reading process, is motivation (Baker & Wigfield, 1999). Since reading is an optional activity, it requires motivation towards reading besides sufficient mental ability, otherwise, time will not be set aside for reading (Wigfield, Guthrie, Tonks & Prencevich, 2004). Class participation, which is one of the concepts that helps students to be successful and enables development of academic skills, can be stated as the student’s active engagement in learning activities (Skinner, Kinderman & Furrer, 2009). Class participation is an important indicator of student achievement (Handelsman, Briggs, Sullivan & Towler, 2005). Therefore, researchers work on ways and means to increase students’ participation in class.

The methods and materials that teachers are to use to develop reading skills in the elementary school period are important. While the teacher is selecting the method or materials that he will use in class, he must follow technological and scientific developments, place the student at the centre and pay attention to individual differences. In enabling individuals to love reading and display a positive attitude, the inclusion of technology in reading activities is one of these methods (Papatğa, 2016). In this sense, one of the new technologies that can be used in different ways in education environments is Augmented Reality.

Augmented Reality (AR) is the direct or indirect appearance in real time of a real environment that has been enhanced by the addition of computer-based information (Wasko, 2013). In augmented reality, images, data or three-dimensional objects are added simultaneously to a video image of a real environment prepared as the background (Billinghurst, Kato & Poupyrev, 2001). AR offers three-dimensional learning content and assists in permanent and effective learning (Wu, Lee, Chang, & Liang, 2013). AR, which is suitable for a structured learning approach, not only assists in concretisation of abstract concepts (Walczak, Wojciechowski & Cellary, 2006), but also enables learning by doing and experiencing (Singhal, Bagga, Goyal, & Saxena, 2012). In particular, AR enables interaction between real and virtual objects, increases attention and motivation, and aids participation in class (Singhal, Bagga, Goyal & Saxena, 2012).

When studies conducted in the field of education are examined, it is seen that there are numerous studies on the subject of the positive effect on AR on learning, especially when used in subjects such as science, geometry, mathematics and history (Abdüselam, 2014; Akçayr, 2016; Erbaş, 2016; Yıldırım, 2018). Within this scope, the insufficient number of studies conducted in the area of reading is regarded as a deficiency and it is considered that the present study will contribute to the field. The aim of the current study is to examine the effect of augmented reality-based reading activities on reading comprehension, reading motivation, attitude towards reading and class participation of fourth grade elementary students, and to obtain the students’ views regarding this. In line with this main aim, answers were sought to the following questions in the quantitative dimension of the sequential explanatory mixed design:
1. Is there a significant difference between pretest and posttest scores for “reading comprehension”, “reading motivation”, “attitude towards reading” and “class participation” of students in the experimental group with which augmented reality-based reading activities were applied?

2. Is there a significant difference between groups in terms of posttest scores when pretest scores for “reading comprehension”, “reading motivation”, “attitude towards reading” and “class participation” of students in the experimental group with which augmented reality-based reading activities were applied, and students in the control group with which instruction based on the Turkish Subject Curriculum was applied, have been brought under control?

In the qualitative dimension of the sequential explanatory mixed design in the research, answers to the following question were sought:

3. What are the views of students in the experimental group related to augmented reality-based reading activities?

**METHODOLOGY**

**Research Model**

In this study, since the aim was to determine fourth grade elementary students’ levels of reading comprehension, reading motivation, reading attitude and class participation, the quasi-experimental model of quantitative research methods was used. Besides the quantitative data obtained from this model, the qualitative section of the study was carried out with the interview, which is one of the qualitative data collection tools, and therefore, the sequential explanatory model, which is one of the mixed research methods, was used. The sequential explanatory mixed model involves collection and analysis of quantitative data, followed by collection and analysis of qualitative data (Hanson, Creswell, Clark, Petsa & Creswell, 2005).

**Study Group**

**Study group of quantitative dimension of research**

The study group of the quantitative dimension of the research consisted of 54 fourth grade students attending two different classes of a state school with a medium socioeconomic level located in the city centre of the province of Kars during the autumn semester of the 2018-2019 academic year.

**Study group of qualitative dimension of research**

The study group of the qualitative dimension of the research was made up of a total of 26 fourth grade students (14 girls and 12 boys) in the experimental group who took part in augmented reality-based reading activities over a period of 7 weeks, which included a 1-week awareness programme and a 6-week actual implementation.

**Data Collection Tools**

**Data collection tools related to quantitative dimension of research**

**Reading comprehension test**

Two reading comprehension tests, a pretest and a posttest, were developed by the researchers in order to measure students’ reading comprehension skills (Çetinkaya Özdemir & Akyol, 2019). For
the reading comprehension test, multiple choice-type questions suitable for fourth grade with four options were used.

**Elementary reading attitude survey**

To measure the students’ attitudes towards reading in the study, the “Elementary Reading Attitude Survey” (ERAS) developed by McKenna and Kear (1990) and adapted for Turkish by Kocaarslan (2015) was used.

**Motivation to read questionnaire**

To determine students’ reading motivation in the study, the “Motivation to Read Questionnaire” (MRQ) developed by Wang and Guthrie (2004) and adapted for Turkish by Yıldız (2010) was used.

**Student course engagement questionnaire**

To determine students’ participation in the Turkish class, the “Student Course Engagement Questionnaire” (SCEQ) developed by Handelsman et al. (2005) and adapted for Turkish by Gürer (2013) was used.

**Data collection tools related to qualitative dimension of research**

**Semi-structured interview form**

In order to reveal the views of students in the experimental group related to the augmented reality-based reading activities that were carried out, a semi-structured interview form was prepared by the researchers. While the form was being prepared, a review of the literature was made, and the interview questions were created in accordance with this. To determine the appropriateness of the questions for the aim of the research and the target group it would be applied to, and to test the clarity of the questions, the views of 5 specialists with expertise in qualitative research were consulted, and the form was revised accordingly. Then, the draft form was applied to 2 students who were in fourth grade of elementary school, revisions were made to unclear questions, and the form was given its final shape.

**Data Collection**

The data collection process of the research was carried out in two stages, quantitative and qualitative, during the autumn semester of the 2018-2019 academic year. In the quantitative dimension, before the quasi-experimental implementation was carried out, the “reading comprehension pretest”, the “elementary reading attitude survey”, the “motivation to read questionnaire”, and the “student course engagement questionnaire” were applied to the fourth grade students in the experimental and control groups. The scores obtained by the students from this application were accepted as the “pretest”. Before beginning the implementation process, the students in the experimental group were given a one-week awareness programme related to the activities. Following this awareness programme, the six-week implementation was carried out. During the implementation, the lessons were conducted with informative and narrative texts and presented to the students via activities in which AR technology was used. Visuals and videos suitable for the use of AR technology were incorporated into the activities, which were prepared to suit the primary school Turkish Curriculum. For each text, intended as both informative and narrative texts, 8 activities were prepared. An attempt was made to eliminate deficiencies by obtaining expert opinions about the prepared activities. While students in the control group were required to continue their Turkish lessons with the fourth grade elementary Turkish coursebook which included two-dimensional pictures, students in the experimental group used a book designed by the researchers, which included three-
dimensional multimedia materials embedded within activities that were considered necessary and were based on exercises in the Education Ministry’s fourth grade coursebook in line with the elementary Turkish Curriculum. While the book used as course material was being designed, activities were prepared by the researchers according to the selected texts. The three-dimensional multimedia materials suitable for augmented reality that were incorporated into the activities were also prepared by obtaining the assistance of a computer engineer who is a specialist in this field. The final checks of the designed book were made by the designer and researchers, and missing or inaccurate points in the pictures and videos included in the book were corrected. The quasi-experimental implementation was presented via tablet computers with the mobile augmented reality application that was made. Following the quasi-experimental implementation process, the test and scales used in the pretest were implemented again. This application was expressed as the “posttest”. In the qualitative dimension of the study, following the implementation, students’ feelings, ideas and views related to the process were obtained via the semi-structured interview form. The interviews were conducted by means of the semi-structured interview form with the 26 students who made up the experimental group. The interviews, which were held in the school’s support room after lesson hours, were recorded with the permission of the students and lasted about 10-12 minutes each. The interviews began with information about the aim of the research, and students were informed that the interviews were voluntary, would be recorded and would be kept confidential. During the interviews, students were not subjected to any kind of orientation.

Data Analysis

In this study, in which a sequential explanatory mixed design was used, the quantitative data were analysed using the SPSS software program. For analysis of the data obtained during the research, first of all, descriptive statistics were calculated. In all analyses, 0.05 was taken as the level of significance. Moreover, to determine whether or not the scores showed a normal distribution, kurtosis and skewness values were taken as the basis. Since every test that was applied showed a normal distribution, the parametric tests, “t-test for dependent samples” and “t-test for independent samples”, were performed.

In the analysis of the qualitative data, however, content analysis was used for analysing the data obtained. To ensure internal validity of the qualitative data in the study, expert views related to the research questions and data were obtained. In terms of internal reliability, assistance was obtained from three specialists while creating the codes and themes, and certain themes, categories and codes were amended. Moreover, using the formula proposed by Miles and Huberman (1994) for percent agreement [(P)=Number of Agreements/(Number of Agreements+Number of Disagreements)×100], a rate of 89% consensus between researchers was reached. Furthermore, an attempt was made to ensure external validity by making direct quotations from the responses given by the participants. In the direct quotations, student identity was kept confidential by using previously determined code names instead of their real names. Finally, to enable external reliability, the obtained data, the results found and the interpretations made were confirmed by an expert in the field.

FINDINGS AND INTERPRETATION

Findings Obtained in Quantitative Dimension of Study

Findings related to first sub-problem of study

Findings related to the first sub-problem of the study are expressed under four subheadings.

Comparison of reading comprehension pretest and posttest scores of students in experimental group
With the aim of determining the reading comprehension levels of students in the experimental group, the “Reading Comprehension Pretest” and “Reading Comprehension Posttest” were applied, respectively, before and after the quasi-experimental implementation. Descriptive statistical analyses related to the reading comprehension levels of students in the experimental group prior to and following the implementation are shown in Table 1.

Table 1. Descriptive Statistical Analyses Related to Reading Comprehension Levels Before and After Implementation for Students Subjected to Augmented Reality-Based Reading Activities

<table>
<thead>
<tr>
<th>Reading Comprehension</th>
<th>N</th>
<th>( \bar{X} )</th>
<th>Std.Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>26</td>
<td>12.57</td>
<td>4.45</td>
</tr>
<tr>
<td>Posttest</td>
<td>26</td>
<td>18.61</td>
<td>2.29</td>
</tr>
</tbody>
</table>

The dependent samples t-test results related to reading comprehension levels of students subjected to augmented reality-based reading activities are shown in Table 2. Prior to the implementation, the mean score obtained by students in the reading comprehension test was \( \bar{X} = 12.57 \), and the standard deviation was \( \text{std.dev.}=4.45 \). Following the implementation, the mean score obtained by students in the reading comprehension test was \( \bar{X} = 18.61 \), and the standard deviation was \( \text{std.dev.}=2.29 \). According to the results of the dependent samples t-test that was performed, the augmented reality-based reading activities applied to the students significantly increased their reading comprehension test mean scores \( \bar{X}=6.03 \) and standard deviations \( \text{std.dev.}=4.83 \), \( t(25)=6.36, p<.05 \) and \( r=0.78 \). It was seen that 78% of the variance in students’ reading comprehension was due to the augmented reality-based reading activities. According to Cohen (1988), this is regarded as a large effect.

Comparison of reading motivation pretest and posttest scores of students in experimental group

With the aim of determining the reading motivation levels of students in the experimental group, the “Motivation to Read Questionnaire” was applied before and after the quasi-experimental implementation. Descriptive statistical analyses related to the reading motivation levels of students in the experimental group prior to and following the implementation are shown in Table 3.

Table 3. Descriptive Statistical Analyses Related to Reading Motivation Levels Before and After Implementation for Students Subjected to Augmented Reality-Based Reading Activities

<table>
<thead>
<tr>
<th>Reading Motivation</th>
<th>N</th>
<th>( \bar{X} )</th>
<th>Std.Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>26</td>
<td>67.73</td>
<td>10.08</td>
</tr>
<tr>
<td>Posttest</td>
<td>26</td>
<td>72.57</td>
<td>5.74</td>
</tr>
</tbody>
</table>

The dependent samples t-test results related to reading motivation levels of students subjected to augmented reality-based reading activities are shown in Table 4. Prior to the implementation, the
mean score obtained by students in the reading motivation scale was ($\bar{X} = 67.73$), and the standard deviation was (std.dev.=10.08). Following the implementation, the mean score obtained by students in the reading motivation scale was ($\bar{X} = 72.57$), and the standard deviation was (std.dev.=5.74). According to the results of the dependent samples t-test that was performed, the augmented reality-based reading activities applied to the students significantly increased their reading motivation scale mean scores ($\bar{X}=4.84$) and standard deviations (std.dev.=11.32), t(25)=2.18, p<.05 and r=0.39. It was seen that 39% of the variance in students’ reading motivation was due to the augmented reality-based reading activities. According to Cohen (1988), this is regarded as a medium effect.

**Comparison of reading attitude pretest and posttest scores of students in experimental group**

With the aim of determining the reading attitude levels of students in the experimental group, the “Elementary Reading Attitude Survey” was applied before and after the quasi-experimental implementation. Descriptive statistical analyses related to the reading attitude levels of students in the experimental group prior to and following the implementation are shown in Table 5.

| Table 5. Descriptive Statistical Analyses Related to Reading Attitude Levels Before and After Implementation for Students Subjected to Augmented Reality-Based Reading Activities |
|--------------------------------------------------|---------|-----------|
| Attitude Towards Reading                        | N       | $\bar{X}$ | Std.Dev.  |
| Pretest                                          | 26      | 29.19     | 6.15      |
| Posttest                                         | 26      | 44.00     | 9.09      |

The dependent samples t-test results related to reading attitude levels of students subjected to augmented reality-based reading activities are shown in Table 6. Prior to the implementation, the mean score obtained by students in the reading attitude scale was ($\bar{X} = 29.19$), and the standard deviation was (std.dev.=6.15). Following the implementation, the mean score obtained by students in the reading attitude scale was ($\bar{X} = 44.00$), and the standard deviation was (std.dev.=9.09). According to the results of the dependent samples t-test that was performed, the augmented reality-based reading activities applied to the students significantly increased their reading attitude scale mean scores ($\bar{X}=14.80$) and standard deviations (std.dev.=11.20), t(25)=6.74, p<.05 and r=0.80. It was seen that 80% of the variance in students’ reading attitude was due to the augmented reality-based reading activities. According to Cohen (1988), this is regarded as a large effect.

**Comparison of class participation pretest and posttest scores of students in experimental group**

With the aim of determining the class participation levels of students in the experimental group, the “Student Course Engagement Questionnaire” was applied before and after the quasi-experimental implementation. Descriptive statistical analyses related to the class participation levels of students in the experimental group prior to and following the implementation are shown in Table 7.

| Table 7. Descriptive Statistical Analyses Related to Class Participation Levels Before and After Implementation for Students Subjected to Augmented Reality-Based Reading Activities |
|--------------------------------------------------|---------|-----------|
| Class Participation                             | N       | $\bar{X}$ | Std.Dev.  |
| Pretest                                          | 26      | 85.46     | 11.45     |
| Posttest                                         | 26      | 93.61     | 8.00      |
The dependent samples t-test results related to class participation levels of students subjected to augmented reality-based reading activities are shown in Table 8. Prior to the implementation, the mean score obtained by students in the class participation scale was ($\bar{X} = 85.46$), and the standard deviation was (std.dev.=11.45). Following the implementation, the mean score obtained by students in the class participation scale was ($\bar{X} = 93.61$), and the standard deviation was (std.dev.=8.00). According to the results of the dependent samples t-test that was performed, the augmented reality-based reading activities applied to the students significantly increased their class participation scale mean scores ($\bar{X}=8.15$) and standard deviations (std.dev.=16.57), $t(25)=2.50$, $p<.05$ and $r=0.44$. It was seen that 44% of the variance in students’ class participation was due to the augmented reality-based reading activities. According to Cohen (1988), this is regarded as a medium effect.

Findings related to second sub-problem of study

Findings related to the second sub-problem of the study are expressed under four subheadings.

Comparison of reading comprehension posttest scores of students in experimental and control groups

To determine whether there was a significant difference between reading comprehension posttest scores of students in the experimental group, who were subjected to augmented reality-based reading activities, and students in the control group, who were subjected to the standard Turkish subject curriculum, analysis was made with the independent samples t-test. The independent samples t-test analyses related to reading comprehension levels of students in the experimental and control groups following the implementation are shown in Table 9.

As can be seen in the above table, the mean score ($\bar{X}=18.61$, std.dev.= 2.29) obtained in the reading comprehension test by students subjected to augmented reality-based reading activities was higher than the mean score ($\bar{X}=13.28$, std.dev.= 4.36) obtained in the reading comprehension test by students subjected to the standard Turkish subject curriculum. The difference between the mean reading comprehension scores of students subjected to augmented reality-based reading activities and mean reading comprehension scores of students subjected to the standard Turkish subject curriculum is significant, $t(52)= 5.67$, $p<.05$, $r= 0.61$. The augmented reality-based reading activities explain 61% of the students’ reading comprehension. According to Cohen (1988), the calculated r value is regarded as a large effect.

Comparison of reading motivation posttest scores of students in experimental and control groups
To determine whether there was a significant difference between reading motivation posttest scores of students in the experimental group, who were subjected to augmented reality-based reading activities, and students in the control group, who were subjected to the standard Turkish subject curriculum, analysis was made with the independent samples t-test. The independent samples t-test analyses related to reading motivation levels of students in the experimental and control groups following the implementation are shown in Table 10.

### Table 10. Independent Samples t-Test Results Related to Reading Motivation Levels of Students in Experimental Group Subjected to Augmented Reality-Based Reading Activities and Students in Control Group Subjected to Standard Turkish Subject Curriculum

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean (X)</th>
<th>Std.Dev.</th>
<th>Sd</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exp.</td>
<td>26</td>
<td>72.57</td>
<td>5.74</td>
<td>52</td>
<td>9.29</td>
<td>.000</td>
</tr>
<tr>
<td>Control</td>
<td>28</td>
<td>54.17</td>
<td>8.23</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As can be seen in the above table, the mean score ($\bar{X}=72.57$, std.dev.= 5.74) obtained in the reading motivation scale by students subjected to augmented reality-based reading activities was higher than the mean score ($\bar{X}=54.17$, std.dev.= 8.23) obtained in the reading motivation scale by students subjected to the standard Turkish subject curriculum. The difference between the mean reading motivation scores of students subjected to augmented reality-based reading activities and mean reading motivation scores of students subjected to the standard Turkish subject curriculum is significant, t(52)= 9.29, p<.05, r= 0.78. The augmented reality-based reading activities explain 78% of the students’ reading motivation. According to Cohen (1988), the calculated r value is regarded as a large effect.

**Comparison of reading attitude posttest scores of students in experimental and control groups**

To determine whether there was a significant difference between reading attitude posttest scores of students in the experimental group, who were subjected to augmented reality-based reading activities, and students in the control group, who were subjected to the standard Turkish subject curriculum, analysis was made with the independent samples t-test. The independent samples t-test analyses related to reading attitude levels of students in the experimental and control groups following the implementation are shown in Table 11.

### Table 11. Independent Samples t-Test Results Related to Reading Attitude Levels of Students in Experimental Group Subjected to Augmented Reality-Based Reading Activities and Students in Control Group Subjected to Standard Turkish Subject Curriculum

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean (X)</th>
<th>Std.Dev.</th>
<th>Sd</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exp.</td>
<td>26</td>
<td>44.00</td>
<td>9.09</td>
<td>52</td>
<td>3.17</td>
<td>.003</td>
</tr>
<tr>
<td>Control</td>
<td>28</td>
<td>36.53</td>
<td>8.19</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As can be seen in the above table, the mean score ($\bar{X}=44.00$, std.dev.= 9.09) obtained in the reading attitude scale by students subjected to augmented reality-based reading activities was higher than the mean score ($\bar{X}=36.53$, std.dev.= 8.19) obtained in the reading attitude scale by students subjected to the standard Turkish subject curriculum. The difference between the mean reading attitude scores of students subjected to augmented reality-based reading activities and mean reading attitude scores of students subjected to the standard Turkish subject curriculum is significant, t(52)= 3.17, p<.05, r= 0.40. The augmented reality-based reading activities explain 40% of the students’ reading attitude. According to Cohen (1988), the calculated r value is regarded as a medium effect.

**Comparison of class participation posttest scores of students in experimental and control groups**
To determine whether there was a significant difference between class participation posttest scores of students in the experimental group, who were subjected to augmented reality-based reading activities, and students in the control group, who were subjected to the standard Turkish subject curriculum, analysis was made with the independent samples t-test. The independent samples t-test analyses related to class participation levels of students in the experimental and control groups following the implementation are shown in Table 12.

Table 12. Independent Samples t-Test Results Related to Class Participation Levels of Students in Experimental Group Subjected to Augmented Reality-Based Reading Activities and Students in Control Group Subjected to Standard Turkish Subject Curriculum

<table>
<thead>
<tr>
<th>Class Participation Posttest Scores</th>
<th>Group</th>
<th>N</th>
<th>$\bar{x}$</th>
<th>Std.Dev</th>
<th>Sd</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exp.</td>
<td>26</td>
<td>93.61</td>
<td>8.00</td>
<td></td>
<td>52</td>
<td>7.24</td>
<td>.000</td>
</tr>
<tr>
<td>Control</td>
<td>28</td>
<td>74.28</td>
<td>11.19</td>
<td></td>
<td>52</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As can be seen in the above table, the mean score ($\bar{x}$=93.61, std.dev.= 8.00) obtained in the class participation scale by students subjected to augmented reality-based reading activities was higher than the mean score ($\bar{x}$=74.28, std.dev.= 11.19) obtained in the class participation scale by students subjected to the standard Turkish subject curriculum. The difference between the mean class participation scores of students subjected to augmented reality-based reading activities and mean class participation scores of students subjected to the standard Turkish subject curriculum is significant, $t(52)$= 7.24, p<.05, r= 0.70. The augmented reality-based reading activities explain 70% of the students’ class participation. According to Cohen (1988), the calculated r value is regarded as a large effect.

Findings Obtained in Qualitative Dimension of Study

In this section, answers are sought to the question “What are the views of students in the experimental group related to augmented reality-based reading activities?” which is expressed as a research question in the qualitative dimension of the study. Data obtained in the qualitative dimension are given in the form of findings obtained from the interviews.

Qualitative findings obtained from interviews

Following the quasi-experimental implementation process, semi-structured interviews were conducted with the 26 students in the experimental group of the research. Following the content analysis that was made, the research findings were grouped under 3 main themes. These themes are “Using AR in the teaching-learning process”, “Effect on students of using AR in the teaching-learning process” and “Suggestions”.

Using AR in the Teaching-Learning Process

The first of the themes that emerged in line with the views of students in the experimental group was “Using AR in the teaching-learning process”. Table 13 presents a summary of students’ views related to augmented reality-based reading activities in the theme of “Using AR in the teaching-learning process”.

### Table 13. Summary of Students’ Views Related to Using AR in the Teaching-Learning Process

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>$\bar{x}$</th>
<th>Std.Dev</th>
<th>Sd</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exp.</td>
<td>26</td>
<td>93.61</td>
<td>8.00</td>
<td>52</td>
<td>7.24</td>
<td>.000</td>
</tr>
<tr>
<td>Control</td>
<td>28</td>
<td>74.28</td>
<td>11.19</td>
<td>52</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 13. Views of Students Related to Augmented Reality-Based Reading Activities in Theme of Using AR in the Teaching-Learning Process

<table>
<thead>
<tr>
<th>Theme</th>
<th>Category</th>
<th>Sub-Category</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>USING AR IN THE TEACHING-LEARNING PROCESS</td>
<td>Advantages</td>
<td>In Technical Terms</td>
<td>Easy to use, real-like, three-dimensional</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Regarding the Student</td>
<td>Enjoyable, attractive, exciting, participative</td>
</tr>
<tr>
<td></td>
<td>Disadvantages</td>
<td>In Technical Terms</td>
<td>Tablet gets stuck, application does not open</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Regarding the Student</td>
<td>Fear of dropping tablet, fear of misuse, unable to share with friends, difficult to hold</td>
</tr>
</tbody>
</table>

Examination of Table 13 reveals that the theme of using AR in the teaching-learning process is divided into two categories, namely, “advantages” and “disadvantages”. Furthermore, each category is itself divided into sub-categories as “in technical terms” and “regarding the student”. With regard to the technical advantages offered by AR, these were expressed as the fact that it is easy to use, real-like and three-dimensional, while in terms of the student the advantages were stated to be that it is enjoyable, attractive, exciting and participative. Examples of students’ views on this subject are as follows:

“I really enjoyed myself in the lessons. It was very enjoyable. I understood that it was easier and more entertaining than the procedure we normally follow.” (S9)

“It’s as if the three-dimensional pictures were real, for example, the apples, I felt like I would eat them soon.” (S22)

“The activities were very nice. When we held the tablet to the book, three-dimensional things appeared. I felt like I could really see them. For example, when I held the picture of Pamukkale, I really felt as if I were there.” (S26)

When the disadvantages of AR are examined from the technical aspect, these were expressed as the tablet getting stuck and the application not opening, while from the student’s point of view, the disadvantages were stated as fear of dropping the tablet, fear of misusing the tablet, inability to share the tablet with friends and difficulty in holding the tablet.

One of the students expressed the situation related to technical problems like this: “The fact that the tablets sometimes got stuck was a situation I did not like. For example, we were watching a video. While everyone was watching, ours got stuck.” (S4) Another student stated, “Sometimes the application did not open on the tablet, and I had problems there.” (S20)

The views of one of the students regarding situations presented in the disadvantages category in terms of the student are as follows: “While I was using the tablet, I was very careful not to drop the tablet, as it belonged to someone else.” (S3).

**Effect on students of using AR in the teaching-learning process**

Another of the themes that emerged in relation to the augmented reality-based reading activities in the interviews held with students in the experimental group was that of “Effect on students of using AR in the teaching-learning process”. Table 14 includes the categories, sub-categories and codes related to this theme.
Table 14. Views of Students Related to Augmented Reality-Based Reading Activities in Theme of Effect on Students of Using AR in the Teaching-Learning Process

<table>
<thead>
<tr>
<th>Theme</th>
<th>Category</th>
<th>Sub-Category</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>EFFECT ON STUDENTS OF USING AR IN THE TEACHING-Learning Process</td>
<td>In terms of Reading Skills</td>
<td>Fluent Reading</td>
<td>Error-free reading, reading in a strong and lively voice, rapid reading and comprehension</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vocabulary</td>
<td>Improvement of vocabulary</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Comprehension</td>
<td>Development of reading comprehension skills</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reading Attitude</td>
<td>Love of reading</td>
</tr>
<tr>
<td></td>
<td>In Cognitive Terms</td>
<td>Thinking Skills</td>
<td>Enabling thinking, mental development, development of imagination</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Academic Development</td>
<td>Increasing success, retention of learning, rapid learning</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Communication Skills</td>
<td>Ability to express oneself</td>
</tr>
<tr>
<td></td>
<td>In Terms of Subject Area Knowledge</td>
<td>Acquisition of New Knowledge</td>
<td>The life of Atatürk, Healthy nutrition, Characteristics of animals, Invention of the light bulb, Beauties of our country</td>
</tr>
</tbody>
</table>

Examination of Table 14 reveals that the theme of effect on students of using AR in the teaching-learning process is divided into three categories, namely, “in terms of reading skills”, “in cognitive terms”, and “in terms of subject area knowledge”. Furthermore, each category is itself divided into sub-categories.

The category of “in terms of reading skills” is presented as the sub-categories of fluent reading, vocabulary, comprehension and reading attitude. Below are examples of students’ views regarding this situation:

“I learned new words thanks to the application” (S11), “It enabled me to understand more easily while reading. It allowed me to develop my story reading further” (S12), “I learned to love reading more. For example, following this application I started to read more books. I loved reading more.” (S14)

When “in cognitive terms”, which is another category, is examined, it is seen that the sub-categories of thinking skills, academic development and communication skills were formed.

Regarding the thinking skills sub-category, one of the students said, “I think that it improved our imaginations, because in the application, we saw very different things than pictures in a text. This took me to different places.” (S25)

In the academic development sub-category, the views of one student were as follows:

“For example, when I didn’t understand what I read, I had to read it again. But with the visuals on the tablet, I understood more quickly. For example, I had never seen the museum at Atatürk’s house. But I saw it, and it became more permanent for me.” (S25)
In the communication skills sub-category, one student stated his opinions about being able to express himself as “When there were characters I loved in the activities, I wanted to join in the lesson more, answer more questions and explain myself” (S4), while another student stated “I used to find it a bit difficult to speak and express myself. It was beneficial in those respects.” (S10)

When the final category in this theme, which is “in terms of subject area knowledge”, is examined, it is seen that the sub-category of acquisition of new knowledge was formed. In this sub-category, the students generally based their opinions on the knowledge they acquired about the texts they studied during the implementation. Some of the students’ views regarding this situation are as follows:

“For example, I did not know that when inventing the light bulb, Edison tried to do this with cotton from his button. I did not know that he experimented with coconuts, or that he experimented with his guest’s beard. I learned all of these” (S8), “With the application on the tablet, I felt like I was going to places I had never visited in Turkey. I learned about these” (S18), “For example, by means of the tablets, we saw three-dimensional animals. I became more closely acquainted with the animals, I examined them and learned about their features” (S19), “There were very strange things. For example, when I held the tablet to the paper, weird things happened. The way the visuals and pictures appeared was very interesting. When I heard Atatürk’s actual voice, I was very impressed. For example, when I hear or see something related to the subjects we learned, the applications on the tablet spring immediately to mind. Whenever I see a light bulb, I think of Edison; whenever I look at a picture of Atatürk, I remember Atatürk’s voice.” (S21)

Suggestions

The final theme to emerge as a result of the interviews held with the students was expressed as “Suggestions”. Table 15 presents a summary of students’ views related to this theme.

Table 15. Views of Students Related to Augmented Reality-Based Reading Activities in Theme of Suggestions

<table>
<thead>
<tr>
<th>Theme</th>
<th>Category</th>
<th>Sub-Category</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUGGESTIONS</td>
<td>Using AR in Education</td>
<td>User Group</td>
<td>It should be used in every grade</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Application Period</td>
<td>The application period should be increased</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lesson Process</td>
<td>It should be used continuously in Turkish lessons</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of Tablets</td>
<td>It should also be used in other lessons</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The number of tablets should be greater</td>
</tr>
</tbody>
</table>

When Table 15 is examined, it can be seen that the suggestions theme is presented as a single category, namely, “Using AR in education”. However, under this category, there are four sub-categories, named “user group”, “application period”, “lesson process”, and “number of tablets”. With regard to the user group, which is one of the sub-categories, one of the students stated, “It was a very nice activity. I hope these activities are included in every grade and that they also will see them and acquire knowledge. By means of this lesson, I have learnt a lot of things.” (S11) In the lesson process sub-category, students offered opinions stating the necessity both for the Turkish lessons to be continuously conducted in this way and for this application to be used in other lessons as well. In this regard, students expressed opinions such as “They were meaningful activities. I think all lessons should be conducted in this way” (S5), “Sometimes, I say that we should conduct our lessons with our teacher in this way.” (S22) Finally, one of the students expressed his view that the number of tablets used in the application should be greater, as follows: “For example, if everyone had a tablet each, or else one tablet could be used by two people. That is, the number of tablets could be higher.” (S17)
CONCLUSION AND DISCUSSION

1. It was seen that the augmented reality-based reading activities had a positive effect on the students’ reading comprehension skills. The fact that during the implementation, students in the experimental group, in contrast with the traditional Turkish lessons conducted in the control group, used augmented reality, which is a technology-based application, and that the students interacted with this technology in the activities, can be stated as a reason for this positive effect, since AR technology appeals to many more senses that make learning meaningful (Núñez et al., 2008) and provides benefits for students who have difficulty in learning two-dimensional texts (Billinghurst & Duenser, 2012). When the conducted studies are examined, the findings generally show parallelism with those of the current study (Huisinga, 2017; Retter et al., 2013; Romano, 2015). In a study made by Vate-U-Lan (2012), the aim was to teach English by means of a three-dimensional AR book to children attending a school in Bangkok. The results of the study reveal that the students’ comprehension, learning and class participation increased.

2. It was seen that the augmented reality-based reading activities were effective in increasing the students’ motivation to read. It is thought that because AR technology is three-dimensional and works in integration with a real environment, and in the prepared AR activities, cartoon characters, colourful and real pictures and videos at a suitable level for attracting students’ attention are utilised, it assists in the development of reading motivation. When the studies in the literature are examined, there are numerous studies in different areas showing similarity with the results of the present study and stating that AR supports motivation (Delello, 2014; Küçük, Yılmaz & Göktaş, 2014; Thornton, 2014). An AR-supported pop-up English story book was designed for five 7th grade students attending a school in Malaysia. Each student was given the opportunity to practise with this book. The interviews that were made at the end of the implementation revealed that the students’ motivation had increased (Mahadzir & Phung, 2013).

3. It was also seen that the augmented reality-based reading activities had a positive effect on the students’ attitudes towards reading. Vis-à-vis the results that appeared in the students’ reading motivation, this finding is expected, as there is a positive relationship between motivation and attitude. Furthermore, the fact that the students benefited from their favourite characters in the application, that songs and visuals were used in the activities, and that during the development of the application, views of specialists in the fields of reading and AR were obtained, may have enabled the results to be effective. When studies conducted in the related literature are examined, there are studies in different areas which have obtained similar results to those of the current study and which state that AR supports attitude (Agorou, Kallinikou, Kyriacou, Miltiadous & Nicolaidou, 2018; Cheng, 2017; Kerawalla, Luckin, Seljeflot & Woolard, 2006; Sumadio & Rambli, 2010; Wojciechowski & Cellary, 2013). Cheng (2017) examined the effect of an AR book-reading activity on motivation and attitudes of 153 students. The findings generally reveal that while reading the AR books, the students displayed stronger motivation and a more positive attitude towards the activities.

4. The augmented reality-based reading activities were also effective in increasing students’ engagement in class. The fact that the results were positive can be shown as the fact that, as stated above, affective factors such as attitude and motivation that affect engagement in class increased due to the implementation. That is, a student who loves the subject and takes an interest in it will have a positive attitude towards that subject. Since he has a positive attitude, he will be motivated towards the subject, and a motivated student will also participate more in the lessons. Therefore, it can be expected that the results of the research will emerge in this way. When the studies in the literature are examined, there are studies which show similarity with the results of the present study and which reveal the effect of AR on engagement in class in many areas from science education, art education and mathematics to language use (Delello, 2014; Di Serio et al., 2013; Han, Jo, Hyun & So, 2015).

5. The students’ views related to the augmented reality-based reading activities are generally positive. The first thing that students stated in relation to the AR application was that the application is
easy to use. This finding shows that in keeping with the age we live in, the AR application can be easily used during the teaching-learning process. When related studies are examined, it is seen that a number of studies have obtained similar results (Sin & Badioze-Zaman, 2010; Tian, Endo, Urata, Mouri & Yasuda, 2014). Furthermore, the fact that the application is realistic, enjoyable and participative are advantages of AR that were mentioned. Indeed, the fact that AR creates a feeling of reality and is three-dimensional is one of the main factors that made the application enjoyable for the students, since the fact that traditional lessons were continually conducted with two-dimensional material and that some activities did not go beyond the book may have caused the students to become bored. Moreover, the fact that AR appeals to a number of senses may have made the subject enjoyable for the students. Though few in number, some students held views expressing what they regarded as negative situations under the heading of disadvantages of AR, to the effect that besides technical situations such as the fact the tablet got stuck or did not open in some applications, they were afraid of dropping or misusing the tablet or had difficulty in holding it. It is thought that the reasons why technical problems were observed may be because some tablet software programs found it difficult to support the application, or else it may be due to a situation arising from daylight, since when there is insufficient daylight or it comes from an opposite angle, the tablet cannot focus on the image in the application and cannot perceive the image. Situations such as fear of dropping or misusing the tablet or difficulty in holding it, which are problems arising from the student, may be due to the fact that students did not have enough interaction with tablets in their daily lives or that the tablets did not belong to them. In terms of the technical aspect of AR, similar findings have been achieved in studies in the literature (Erbaş, 2016; İbili, 2013; Sırakaya, Zaman, 2010; Tian, Endo, Urata, Mouri & Yasuda, 2014). In the second theme constituting the findings obtained from the qualitative research results, students mostly stated that using AR in the teaching-learning process improved their vocabulary, comprehension and attitude towards reading. The views that were obtained generally support the quantitative dimension of the research. The fact that the activities included within the AR application were enjoyed by the students and attracted their attention may have helped the students to develop their reading skills. Moreover, the visuals and videos that supported the content of the texts may have enabled their intertextual thinking. Consequently, this may also have facilitated their understanding of the text or the increase of their vocabulary. There are studies in the literature that support this finding (Huisinga, 2017; Slijepcevic, 2011; Retter et al., 2013). In research which was carried out with the aim of improving students’ reading, writing, speaking and listening skills by means of AR, it was concluded that students’ vocabulary also increased (Özarslan, 2013, cited from Slijepcevic). One of the situations expressed was also the fact that according to the students, AR developed their thinking, academic and communication skills. In this context, students stated that they were intellectually active during the application, that their imagination developed, that their success in the subject increased and that their self-expression skills improved. The fact that AR appeals to more than one sense and that different activities and visuals are used in relation to the subjects taught, assisted in the development of the students’ imagination just as it enabled their active intellectual engagement. Moreover, the students’ interpretation of the visuals, videos and texts during the implementation also enabled them to express themselves. Naturally, this process increased their success in the subject. A number of studies are found in the literature that have determined that AR improves academic achievement (Dünsor, 2008; Eroğlu, 2018; Şahin, 2017). One of the views expressed by the students was that AR helped them to acquire new knowledge. During the implementation, six different texts were used within the AR. The students stated the benefit provided by AR in obtaining information from the texts that were used. The reason for this is that the videos or visuals used in the texts that were taught went beyond the written text and were informative, which attracted the attention of the students. In the literature, applications related to AR were carried out on a certain subject in numerous studies. The results that emerge generally state that AR is beneficial for teaching that subject (Eroğlu, 2018; İbili, 2013; Srakaya, 2015; Şahin, 2017). The students stated the necessity for longer applications when using AR, for AR to be used in other subjects besides Turkish, and for it to be carried out with an increased number of tablets. The reason why these views were presented may be because the implementation was limited to a total of 30 hours over a period of six weeks with five hours per week, that the number of tablets was limited to one tablet per three people, and that the implementation was carried out only in Turkish lessons during the research. When the situation is examined in a positive sense, however, it is
concluded that the students were satisfied with the AR application, and that for this reason, they wanted it to be used in other lessons and for longer periods.

In line with the findings obtained as a result of the study, it is seen that in studies in which augmented reality is used in the literature, it is generally used in numerical subjects such as science, geometry and mathematics. In order to expand the area of use of AR in education, its use can be extended to subjects such as Turkish and social sciences. With regard to the subject of Turkish, activities can be developed in areas other than reading, such as writing, listening and speaking. Seminars or in-service training can be provided for teachers regarding the use of this technology, which is new to our country and whose use in education is not yet widespread, in their classes. In studies to be conducted in the future, activities can be conducted with students who have learning difficulties, and applications can be carried out with students who have different competencies.

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An Examination of the Relationships Between Pre-Service Teachers’ Epistemological Beliefs and Types of Multiple Intelligence*

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Abstract

In the literature, there are studies that separately tackled with how the epistemological beliefs and multiple domains of intelligence of the individuals have developed through their experiences. However, no study has investigated the relationship between them. Consequently, this study aims to investigate the pre-service science, elementary mathematics and classroom teachers’ epistemological beliefs, their Multiple Intelligence (MI) domains, and the relationship between these. The sample of this descriptive survey study consists of 457 pre-service teachers (PSTs) in total. The data is collected through the ‘Multiple Intelligence Inventory’ and ‘Epistemological Beliefs Questionnaire’. One-way ANOVA and Pearson correlation coefficient were used for data analysis. Findings revealed statistically significant differences in the MI domains and epistemological belief dimensions (EBDs) in terms of the branches of PSTs. Also, there is a significant relationship between some MI domains and some EBDs in terms of PST’s branches. In addition to these, the findings imply that the cultures, structures, implicit and explicit rules, adaptation strategies and the content that are imposed by each branch influences this relationship between MI and EBDs.

Keywords: Pre-Service Teachers, Teacher Training, Epistemological Beliefs, Multiple Intelligence

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INTRODUCTION

In the 21st century, countries need and want to educate qualified individuals who can think creatively and analytically, deal with problems critically, produce innovative solutions from multiple perspectives, and have collaborative skills (Skjelstad Fredagsvik, 2021). Because it is thought that individuals with these characteristics will play an essential role in the development of their country by adapting to the changes and developments of the era. In this respect, individuals' perceptions of knowledge, in other words, epistemological beliefs, have an essential place (Demir & Akinoglu, 2010; Peffer & Ramezani, 2019).

Epistemology began with Perry's work on mental and moral development and progressed further with Schommer (Aksan, 2006). At this point, it is seen that there are studies that search for some answers to the questions of ‘definition of information, how it is formed, how it is evaluated and how knowing occurs’ (Hofer, 2002). Thus, Hofer (2001) states that epistemology consists of "...beliefs about the definition of knowledge, how knowledge is constructed, how knowledge is evaluated, where knowledge resides, and how knowing occurs." (p. 355). Schommer (1990), on the other hand, proposes that individuals with undeveloped or immature epistemological beliefs think that knowledge is simple and absolute, learning takes place immediately and the ability to learn is innate and cannot be developed later. Besides, he argues that individuals with advanced or mature epistemological beliefs think that information is complex, changeable, learning takes requires time and effort. However, it is seen that many studies have been conducted on how epistemological beliefs are formed and which variables are affected (Mason & Boscolo, 2004; Peffer & Ramezani, 2019; Schommer-Aikins & Easter, 2006). The relationship between individuals and their characteristics is also of interest to researchers especially in recent years (Buehl, 2003). One of these individual characteristics is intelligence.

How intelligence relates to epistemological beliefs is discussed in the “Social-Cognitive Approach to Motivation and Personality” developed by Dweck and Leggett (1988). This system consists of two fundamental dimensions: “Beliefs” and “Objective Orientation” (Dupeyrat & Marine, 2005). In the dimension of beliefs, there is a bipolar beliefs continuum that assumes two perceptions of the individuals: the intelligence is either can be developed or not. The second dimension of the system, goal-oriented, is divided into two levels as learning-oriented and performance-oriented. For the learning-oriented level: it is stated that the intelligence can be developed if the needed effort is given and for the performance-oriented level, the intelligence stated to be not developable. However, as a result of the reflections of existentialist and progressive philosophical approaches, the ways of obtaining information have changed, and Intelligence has been redefined with these changes. Gardner (1993) defines the term of intelligence as: “The ability to solve problems or to create products that are valued within one or more cultural settings” (p. 7). Gardner emphasizes that intelligence cannot be associated with a single factor such as genetics, but that multiple factors such as environmental factors will also affect intelligence (Demirel, 2000). Thus, it is perceived that intelligence is plural and developable, rather than being measured by any numerical data, as areas where individuals can present themselves in daily life (Saban, 2002). According to Gardner (1993) individuals are born with at least eight areas of intelligence: “Verbal-Linguistic Intelligence (VLI)”, “Logical-Mathematical Intelligence (LMI)”, “Visual-Spatial Intelligence (VSI)”, “Musical-Rhythmic Intelligence (MRI)”, “Physical-Kinesthetic Intelligence (PKI)”, “Social-Interpersonal Intelligence (SII)”, “Intrapersonal Self-oriented Intelligence (ISI)” and “Naturalist Intelligence (NI)” being at various levels. Moreover, these domains of intelligence can be developed through different experiences of individuals.

In the literature, studies were conducted to determine the epistemological beliefs and intelligence types of teachers, PSTs students separately. As an example, Koç and Memduhoğlu (2017) examined whether there is a significant difference regarding the epistemological beliefs of PSTs according to the variables of grade-level, gender, and department. According to the findings of the study, the epistemological beliefs of the participants were not developed / immature, and these beliefs did not change during their training. In addition, it was seen that these beliefs did not differ in terms of
department, grade-level and gender. Another study with PSTs found that most of the participants had epistemological beliefs that scientific knowledge was proven and would not change (Eick, 2000). In a study conducted by Braten and Stromso (2005), epistemological beliefs did not change according to the field of study, but it was revealed that PSTs believed that intelligence could be developed in comparison to the students of the department of business administration. Looking at the studies in the literature on the identification of types of the intelligence, for example, Gürçay and Eryılmaz (2005) found that the pre-service physics teachers did not have enough knowledge of the types of intelligence. Furthermore, Hamurcu, Günay, and Özyılmaz (2002) aimed to reveal the MI profiles of pre-service science and classroom teachers and found that the participants had differences in their intelligence levels. The findings also showed that VLI was more dominant in pre-service classroom teachers and LMI and VSI domains were more dominant in pre-service science teachers. In addition, Lawrence (2014) conducted a study with 400 PSTs and found that there were differences between regarding gender of PSTs in terms of VLI and first-and second-grade participants in terms of MSI. In a different study, Gracious and Shyla (2012) investigated PSTs’ awareness of MI and digital learning. The study found that verbal and naturalist intelligence of the PSTs under the age of 22 were more dominant than the PSTs over the age of 22. Also, it was determined that PSTs from a rural lifestyle were more dominant in verbal, logical, naturalist, and intrapersonal intelligence than the participants from urban life.

In the literature, it is seen that epistemological beliefs are evaluated with academic achievement, locus of control, attitude towards technology, problem-solving skills perceptions, critical thinking, and researchers mainly focused on the theory of multiple intelligence as metacognitive learning strategies (Baş & Özturan- Sağırlı, 2017). In addition, although the relationship between intelligence and epistemological beliefs has been investigated (Dweck & Leggett, 1988), no studies have investigated the relationship between epistemological beliefs and MI types. In this respect, the epistemological beliefs and MI profiles of PSTs, and the relationships between their EBDs and MI profiles will reveal the epistemological beliefs that should be emphasized in the training of PSTs within the framework of MI. Therefore, present study aims to investigate the pre-service science, elementary mathematics and classroom teachers’ epistemological beliefs, their MI domains, and the relationship between these intelligence profiles and EBDs.

For this purpose, the answers to the following research questions were sought.

1) What are the relationships between the preservice teachers’ domain of MI according to their branches?
2) What are the relationships between epistemological belief dimensions of the preservice teachers according to their branches?
3) What are the relationships between the preservice teachers’ multiple intelligence domains and epistemological belief dimensions by branches?

**METHOD**

**Research Design**

The descriptive survey model, one of the quantitative research methods, was used to determine the PSTs’ epistemological beliefs and MI domains in this study. The reason to prefer this model is to describe the current situation without any intervention (Fraenkel, Wallen, & Hyun, 2012).

**Participants**

The population of this study was determined as pre-service science, elementary mathematics, and classroom teachers in Eastern Anatolia. In addition, the sample was determined through
convenience sampling method (Fraenkel et al., 2012) by considering factors such as accessibility, cost, and labor. In this context, 457 PSTs who were studying in the faculty of education of a state university in Eastern Anatolia at the departments of science teaching (ST), elementary mathematics teaching (EMT) and classroom teaching (CT) participated in this study on a voluntary basis. Among the participant PSTs, 148 (116 females, 32 males) were enrolled in ST, 124 (82 females, 42 males) were enrolled in EMT, and 170 (109 females, 61 males) were enrolled in CT programs.

**Data Collection Tools**

There are two different data instruments used in this study. McKenzie’s (1999), which afterwards edited by Gary Harms to include Howard Gardner’s eighth domains of intelligence and adapted by Oral (2001) was used. This instrument consists of 80 items and eight dimensions: PKI, SII, ISI, LMI, MRI, VLI, NI, and VSI. Oral (2001) determined the Cronbach Alpha value of the instrument as .90. In this study, the calculated Cronbach Alpha values in the respective order of the previous statement, for the dimensions are as follows; .61, .62, .65, .76, .60, .60, .66 and for the whole instrument, it is .92. The second instrument was the “Epistemological Beliefs Questionnaire”, which was developed by Schommer (1990) and adapted into Turkish by Aypay (2011). This scale consists of 30 items and four dimensions named 1) learning process/doubt to experts’ knowledge, 2) innate/fixed ability, 3) learning effort and 4) certainty of knowledge. As a result of the confirmatory factor analysis, the researcher found that the scale partially provided good fit values. In this study, the reliability coefficient was calculated .88 for the learning process dimension, .82 for the innate ability dimension, .87 for the learning effort dimension, and .70 for the dimension of certainty of knowledge.

**Data Collection**

The data of the study were collected on a voluntary basis in 2018. Data instruments were given to the participants at one-week intervals and they were asked to fill them. After the data collection process, the data instruments were matched by the researchers for each participant, and data is entered to the data analysis program.

**Data Analysis**

SPSS package program was used in the analysis of the collected data. While analyzing the data, whether the variables meet the assumptions of One-way Analysis of Variance (ANOVA) was tested, which is made possible analysis due to the nature of the data. Data were analyzed with ANOVA since the data meets the assumptions. In addition, the Pearson correlation coefficient was used to investigate the relationship between the variables.

**RESULTS**

**First Sub-problem**

The findings are presented in the order of each research problem. Table 1 shows the findings obtained as a result of examining MI domains according to the branches of PSTs.

**Table 1 Descriptive statistics of PSTs according to MI domains**

<table>
<thead>
<tr>
<th>MI Domain</th>
<th>Branch</th>
<th>N</th>
<th>Mean</th>
<th>STD</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKI</td>
<td>EMT</td>
<td>124</td>
<td>35.68</td>
<td>5.16</td>
</tr>
<tr>
<td></td>
<td>ST</td>
<td>148</td>
<td>36.18</td>
<td>5.59</td>
</tr>
<tr>
<td></td>
<td>CT</td>
<td>170</td>
<td>35.11</td>
<td>6.11</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>442</td>
<td>35.63</td>
<td>5.69</td>
</tr>
<tr>
<td>SII</td>
<td>EMT</td>
<td>124</td>
<td>32.85</td>
<td>5.22</td>
</tr>
<tr>
<td></td>
<td>ST</td>
<td>148</td>
<td>33.43</td>
<td>5.50</td>
</tr>
<tr>
<td></td>
<td>CT</td>
<td>170</td>
<td>32.72</td>
<td>6.37</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>442</td>
<td>33.00</td>
<td>5.77</td>
</tr>
</tbody>
</table>
When Table 1 is examined, it is seen that the average MI domains, according to the branches of PSTs, are close to each other. In addition, it is found that the highest mean for the PKI belongs to the pre-service science teachers (PSSTs) (36.18), and the lowest mean belongs to the pre-service classroom teachers (PSCTs) (35.11). This situation is similar in the domains of SII, ISI, and VSI. On the other hand, the highest average in the domain of LMI belongs to pre-service elementary mathematics teachers (PSEMTs) (38.77), while the lowest average belongs to PSCTs (35.43). However, this situation seems to be the opposite in the MRI and VLI intelligence domains. Lastly, the highest mean in the NI domain belongs to the PSSTs (35.86), while the lowest mean belongs to the PSEMTs (33.84). The results presented in Table 2 were obtained as the results of ANOVA and the post-hoc test (Bonferroni) to determine whether these differences between the means were statistically significant.

Table 2 The ANOVA results regarding MI domains of PSTs according to branches

<table>
<thead>
<tr>
<th>MI Domain</th>
<th>Source of Variance</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Significant Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>LMI</td>
<td>Between Groups</td>
<td>999.56</td>
<td>2</td>
<td>499.78</td>
<td>14.44</td>
<td>.000</td>
<td>EMT&gt;CT, ST&gt;CT</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>15191.04</td>
<td>439</td>
<td>34.60</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>16190.60</td>
<td>441</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VLI</td>
<td>Between Groups</td>
<td>455.44</td>
<td>2</td>
<td>227.72</td>
<td>8.00</td>
<td>.000</td>
<td>ST&gt;EMT, CT&gt;EMT</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>12492.88</td>
<td>439</td>
<td>28.46</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>12948.32</td>
<td>441</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MRI</td>
<td>Between Groups</td>
<td>367.07</td>
<td>2</td>
<td>183.54</td>
<td>3.30</td>
<td>.038</td>
<td>CT&gt;EMT</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>24415.96</td>
<td>439</td>
<td>55.62</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>24783.03</td>
<td>441</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NI</td>
<td>Between Groups</td>
<td>365.15</td>
<td>2</td>
<td>182.58</td>
<td>5.62</td>
<td>.004</td>
<td>ST&gt;EMT</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>14264.73</td>
<td>439</td>
<td>32.49</td>
<td></td>
<td></td>
<td>ST&gt;CT</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>14629.88</td>
<td>441</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISI</td>
<td>Between Groups</td>
<td>27.307</td>
<td>2</td>
<td>13.65</td>
<td>.440</td>
<td>.644</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>13621.62</td>
<td>439</td>
<td>31.03</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>13648.93</td>
<td>441</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SII</td>
<td>Between Groups</td>
<td>43.44</td>
<td>2</td>
<td>21.72</td>
<td>.651</td>
<td>.522</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>14655.59</td>
<td>439</td>
<td>33.38</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>14699.03</td>
<td>441</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
When Table 2 is examined, it is seen that the PSTs' branches differ statistically according to the domains of LMI, VLI, MRI, and NI. In the domain of LMI, there is a significant difference between the mean scores of PSEMTs and PSSTs against the mean score of PSCTs \[F(2, 441)= 14.44, p<.05\]. In the domain of VLI, there is a significant difference between the mean scores of the PSSTs and PSCTs against the mean score of PSEMTs \[F(2, 441)= 8.00, p<.05\]. In the domain of MRI, there is a significant difference between the PSCTs and the PSEMTs in favor of the PSCTs \[F (2, 441) = 3.30, p <.05\]. Finally, there is a difference in favor of PSSTs in the domain of NI compared both to PSEMTs and PSCTs \[F (2, 441) = 5.62, p <.05\]. However, although there was a difference between the mean scores of PSTs, there was no statistically significant difference in terms of ISI, SII, PKI, and VSI domains.

**Second Sub-problem**

The findings obtained by examining the epistemological beliefs of the PSTs according to their branches, are given in Table 3.

<table>
<thead>
<tr>
<th>EBDs</th>
<th>Branch</th>
<th>N</th>
<th>Mean</th>
<th>STD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning process/Doubt to experts’ knowledge</td>
<td>EMT</td>
<td>124</td>
<td>44.50</td>
<td>6.13</td>
</tr>
<tr>
<td></td>
<td>ST</td>
<td>148</td>
<td>44.17</td>
<td>5.12</td>
</tr>
<tr>
<td></td>
<td>CT</td>
<td>170</td>
<td>22.01</td>
<td>6.34</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>442</td>
<td>35.74</td>
<td>12.36</td>
</tr>
<tr>
<td>Innate/Fixed ability</td>
<td>EMT</td>
<td>124</td>
<td>21.28</td>
<td>4.90</td>
</tr>
<tr>
<td></td>
<td>ST</td>
<td>148</td>
<td>19.44</td>
<td>5.51</td>
</tr>
<tr>
<td></td>
<td>CT</td>
<td>170</td>
<td>28.58</td>
<td>4.99</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>442</td>
<td>23.47</td>
<td>6.57</td>
</tr>
<tr>
<td>Learning effort</td>
<td>EMT</td>
<td>124</td>
<td>19.43</td>
<td>2.92</td>
</tr>
<tr>
<td></td>
<td>ST</td>
<td>148</td>
<td>19.52</td>
<td>3.05</td>
</tr>
<tr>
<td></td>
<td>CT</td>
<td>170</td>
<td>10.56</td>
<td>3.21</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>442</td>
<td>16.05</td>
<td>5.32</td>
</tr>
<tr>
<td>Certainty of knowledge</td>
<td>EMT</td>
<td>124</td>
<td>15.33</td>
<td>3.70</td>
</tr>
<tr>
<td></td>
<td>ST</td>
<td>148</td>
<td>15.34</td>
<td>3.11</td>
</tr>
<tr>
<td></td>
<td>CT</td>
<td>170</td>
<td>20.31</td>
<td>3.43</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>442</td>
<td>17.25</td>
<td>4.17</td>
</tr>
</tbody>
</table>

When Table 3 is examined, it is seen that the mean scores for the learning process/doubt to experts’ knowledge dimension of the PSCTs (22.01) are lower than the scores of the PSEMTs (44.50) and PSSTs (44.17). In terms of innate/fixed ability dimension, mean scores of PSCTs (25.58) were higher than that of PSEMTs (21.28), and PSEMTs have a higher mean score than those of PSSTs (19.44). In the learning effort dimension, it was seen that the mean scores of PSEMTs (19.43) and PSSTs (19.52) were higher than that of PSCTs (10.56). Finally, in terms of the certainty of knowledge, it is seen that PSCTs have a higher mean score (20.31) than both of PSEMTs (15.33) and PSSTs (15.34). ANOVA results and post-hoc (Bonferroni) test results, which are to determine whether these differences between branches are statistically significant, are presented in Table 4.
When Table 4 is examined, it is seen that all EBDs differ statistically according to the branches of PSTs. In terms of the learning process, there is a significant difference between the mean scores of PSEMTs and PSSTs against the mean score of PSCTs \[F (2, 441) = 749.68, p < .05\]. This shows that PSSTs and PSEMTs have a prominent tendency to believe that “The process of obtaining information is valuable”, and “Even the information coming from the experts should be questioned”.

Findings regarding the innate/fixed ability dimension show that there is a difference in favor of the PSCTs against both PSSTs and PSEMTs, and also, there is a significant difference between the PSEMTs and PSSTs in favor of PSEMTs \[F (2, 441) = 140.17, p < .05\]. Therefore, the belief that “Innate abilities limit one’s capabilities” is more evident in PSCTs than other branches; also, PSEMTs’ respective beliefs are more prominent than that of PSSTs.

Regarding the learning effort dimension, there was a significant difference between the mean scores of the PSEMTs and PSSTs against the mean scores of PSCTs \[F (2, 441) = 139.49, p < .05\]. This shows that PSCTs are more distant from the belief that the process of learning something really requires a long time and effort.

Finally, there is a difference in terms of the Certainty of knowledge between the PSCTs and other branches, favoring PSCTs \[F (2, 441) = 111.43, p < .05\]. This reveals PSCTs tend to believe more that scientific knowledge is absolute and unchanging.

**Third Sub-problem**

The findings in Table 5 presents the relationships between the PSTs' MI domains and EBDs.

| Table 4 ANOVA results of the EBDs by branches of the PSTs |
|---------------------------------|------------|-------|-------|--------|--------|----------------|
| **EBDs**                        | **Source of Variance** | **Sum of Squares** | **df** | **Mean Square** | **F**   | **Sig.** | **Significant difference** |
| Learning process / Doubt to expert knowledge, | Between Groups | 52094.54 | 2 | 26047.27 | 749.68 | .000 | EMT>CT ST>CT |
|                                 | Within Groups | 15252.80 | 439 | 34.74 |        |        |        |
| Total                           |               | 67347.34 | 441 |       |        |        |        |
| Innate / Fixed ability          | Between Groups | 7424.27 | 2 | 3712.14 | 140.17 | .000 | EMT>CT ST>CT CT>EMT |
|                                 | Within Groups | 11626.07 | 439 | 26.48 |        |        |        |
| Total                           |               | 19050.34 | 441 |       |        |        |        |
| Learning effort                 | Between Groups | 8326.48 | 2 | 4163.24 | 139.49 | .000 | EMT>CT ST>CT |
|                                 | Within Groups | 4158.57 | 439 | 9.47 |        |        |        |
| Total                           |               | 12485.04 | 441 |       |        |        |        |
| Certainty of knowledge          | Between Groups | 2585.73 | 2 | 1292.86 | 111.43 | .000 | CT>EMT CT>ST |
|                                 | Within Groups | 5093.67 | 439 | 11.60 |        |        |        |
| Total                           |               | 7679.40 | 441 |       |        |        |        |
Table 5 Relationships between PSTs’ MI domains and EBDs

<table>
<thead>
<tr>
<th>MI Domains</th>
<th>Branch</th>
<th>Learning process</th>
<th>Innate / Fixed ability</th>
<th>Learning effort</th>
<th>Certainty of knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>PKI</td>
<td>EMT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ST</td>
<td>.266**</td>
<td>-.233**</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CT</td>
<td>-.204**</td>
<td>.163*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SII</td>
<td>EMT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ST</td>
<td>.201*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CT</td>
<td></td>
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When Table 5 is examined, it is seen that there are significant, albeit low, relationships between some MI domains and some EBDs according to the branches. When the learning process dimension of epistemological belief is taken into consideration for PSCTs, it is seen that there are negatively low-level relationships with the domains of PKI, ISI, LMI, VLI, and NI. This is seen as an increase in the mean scores of the PSCTs in the indicated intelligence fields corresponding to a decrease in points regarding the beliefs of “Process of obtaining information is valuable” and the “The information specified by the experts should also be questioned”. However, when the learning process dimension is considered for PSSTs, it is evident that there is a low-level positive relationship with all MI domains. A similar situation exists for PSEMTs. For PSEMTs, it was found that there was a low level of a positive relationship with ISI and LMI domains. In other words, the increase in the scores of both PSSTs and PSEMTs in the indicated areas of intelligence was found to correspond with the increase in the belief points that “The process of obtaining information is” valuable and that “The information should be questioned”.

When the innate/fixed ability dimension of epistemological belief is examined, it becomes clear that there is a low-level of positive relationship between PSCTs’ PSI, ISI, VLI, VSI, and NI domains. In other words, the increase in the scores of the PSCTs in the respective intelligence areas corresponds to the increase in the belief points that “The innate abilities of individuals will limit their capability”. However, there are negatively low-level relationships with the domains of PKI, MRI, VSI, and NI for the PSSTs. Therefore, the increase in the scores of the respective intelligence domains corresponds to the decrease in the belief points.

When the learning effort dimension is considered, there is a low-level positive relationship with the LMI domain for PSEMTs, whereas it is negative for PSCTs. This shows that the increase in the belief scores that process of learning requires a long time and effort corresponds to an increase of scores in the domain of LMI for PSEMTs, whereas it corresponds to the decrease in PSCTs. Finally, it was found that there was a low level of positive relationships between the certainty of knowledge and the ISI and NI domains of the PSCTs. In other words, it can be seen that the increase in the score of
the PSCTs in the related intelligence fields corresponds to the increase in their belief that the information is absolute and unchanging.

**DISCUSSION, CONCLUSION, AND IMPLICATIONS**

Conclusions of the study which examines the epistemological beliefs, MI domains, and the relationship between MI domains and EBDs concerning the branches of the PSTs presented extensively under respective sub-headings.

**Inferences for MI Domains**

Institutions are structures that try to adopt the information needed to be known, the culture must be internalized, and the explicit or implicit rules must be abided for individuals (Chevallard & Sensevy, 2014). Therefore, it is possible for students who study in different programs at the university to be influenced by the culture of the relevant program. Also, students might develop in the domains of MI necessary for the knowledge and skills that they need to acquire in this direction. The findings of this study support these ideas. When the LMI results of the PSTs were examined, the average scores of both PSEMTs and PSSTs were higher than those of the PSCTs. The main reason behind this situation might be that both PSEMTs and PSSTs are much more engaged in instructional practices that require LMI. Supporting these results, Çeliköz (2017) stated that the programs PSTs were studying affected their dominant intelligence domains. In this context, when the classroom teaching and mathematics teaching programs were compared for the LMI domain, the study found that there was a significant difference in favor of mathematics teaching. In another study conducted on university students, Oral (2001) found that the dominant institutional approach of various programs in MI domains has an impact on the MI domains of individuals in the institution. When an institutional structure is assigned to the programs, it is stated that the MI domains of mathematics and classroom teachers tend to differ. It is stated that this situation stems from courses that teachers are obliged to teach in line with their branches. In this respect, it is implied that mathematics teachers associate their students' success concerning MI profiles with LMI (Yenilmez & Bozkurt, 2006). It was pointed out that the area studied at the graduate level may affect the intelligence profile of individuals (Güneş & Gökçek, 2010). Erdem and Keklik (2020) imply that institutionalization starts at the high school level and draws attention to the fact that the MI scores of PSTs might be affected not only by the education they received at the undergraduate level but also by the branching in high school. From these explanations, it can be said that each institution tries to provide its members with significant amount of knowledge and skills related to the dominant intelligence acknowledged by the institution. In this respect, it is implied that mathematics teachers associate their students' success concerning MI profiles with LMI (Yenilmez & Bozkurt, 2006). It was pointed out that the area studied at the graduate level may affect the intelligence profile of individuals (Güneş & Gökçek, 2010). Erdem and Keklik (2020) imply that institutionalization starts at the high school level and draws attention to the fact that the MI scores of PSTs might be affected not only by the education they received at the undergraduate level but also by the branching in high school. From these explanations, it can be said that each institution tries to provide its members with significant amount of knowledge and skills related to the dominant intelligence acknowledged by the institution. In the present study, it was found that there was no significant difference between the programs in terms of VSI, ISI, SII, and PKI scores. This can be explained by the fact that these programs support previously mentioned areas of intelligence in an identical way or not at all. Differing from these results, when the mean scores of VSI of PSSTs and PSCTs were compared, it was found that there was a significant difference in favor of PSSTs in the literature (Hamurcu et al., 2002).

When the findings of VLI were examined, it was found that the average scores of the PSEMTs were lower than both the PSSTs and PSCTs. It is thought that this is because both PSCTs and PSSTs engage in more learning experiences that can provide the development of the VLI domain. Similar to the findings of this study, Hamurcu et al. (2002) found in their study that classroom teacher candidates had a more dominant VLI domain than PSTs. One of the important implications these findings is that the profiles of intelligence types are shaped according to the undergraduate education of the students in their departments.

When the results of the NI were examined, the average scores of the PSSTs were higher than both the PSEMTs and PSCTs. Supporting these results, many studies report significant differences in favor of ST when compared with other programs (Güneş & Gökçek, 2010; Ocek, Ocek, & Leblebiciler, 2005). This difference might be due to the courses consist of applications regarding
physics, chemistry, and biology disciplines in which many investigations are made on different aspects of nature or beings in nature.

When the results of MRI were examined, there was a significant difference in favor of PSCTs when the scores of PSCTs and PSEMTs were compared. In this case, it can be said that having a music instruction course in the CT training is effective. Putting an emphasis on the use of music is an feasible tool in teaching the course contents (Council of Higher Education [CoHE], 2018a). The use of music as a tool for teaching seems to be feasible in various subjects, but it can also be stated that it is not easy for most contexts. In an example of this, Doğan and Alkış (2007) stated that CT candidates might have difficulty in using MRI in social studies courses.

Inferences on EBDs

Epistemological beliefs are said to be closely related to differences between academic disciplines (Päuler-Kuppinger & Jucks, 2017). Since professional knowledge and general culture courses are generally abundant in these, specific field courses of the branches (CoHE, 2018b), which make up about half of the curricula, can be shown as the main reason for the differentiation in the programs. In each program, approaches to motivating students, facilitating learning through cognition and instruction can be dramatically differentiated (Pintrich, 2003). This situation can be explained by the fact that each program has its own culture, the changes in the production, development, and diffusion of knowledge and the differentiation of the transformation of knowledge for teaching purposes (Chevallard, 2019; Bosch, Hausberger, Hochmuth, Kondratieva & Winsløw, 2021). All these variables may cause differences in the epistemological beliefs of individuals studying in different programs. The findings of this study support this claim. In this study, conclusions regarding the results of the sub-dimensions of Schommer's (1990) EBDs for PSEMTs, PSSTs, and PSCTs are given below and discussed.

Firstly, it is seen that the average scores of PSCTs are lower than those of both PSEMTs and PSSTs in terms of the learning process/doubting experts’ knowledge dimension. This shows that PSSTs and PSEMTs give more value to understanding the essence of the lessons than to acquiring information, and their thoughts on the belief of “The need for that even the information coming from the experts should be questioned”’ is outweighing. On the other hand, lower scores of PSCTs may be due to the low-level of the content regarding the addressed grade of instruction and the need for superficial information for this. This difference may be revealed by the fact that PSSTs enroll courses that emphasize the nature of science, and PSEMTs have mathematics history in their curriculum, whereas undergraduate programs of PSCTs do not have a course relative to this context. Supporting this, Lindblom-Ylanne and Lonka (1999) pointed out that the limitations of the curriculum might affect students' process of acquiring information. Similarly, Schraw (2001) stated that epistemological beliefs are related to domain-specific, and this limits the use of the tools of the domain-general. In this context, the profession of teaching can be considered as a domain-general, whereas individual teacher training programs can be considered as domain-specific.

Concerning the innate/fixed ability, individuals have the idea that their innate abilities limit their capabilities and that there is not much to go beyond this limit. For this dimension, the mean scores of PSCTs were higher than those of both PSEMTs and PSSTs. Moreover, the mean scores of PSEMTs were higher than those of PSSTs. The reason for this may be the prevalence of self-beliefs of individuals. This may be due to the dominant belief that PSCTs cannot learn mathematics. In support of this conclusion, Güveli, İpek, Atasoy, and Güveli (2011) stated that CT candidates perceive mathematics as a challenging course. On the other hand, self-beliefs of PSEMTs regarding that they are less successful in verbal fields might have been influential in this regard. Parallel to these results, Can and Arabacıoğlu (2009) reported that mathematics and science teacher candidates were differentiated when the subdimension of epistemological belief depends on ability, in favor of science teachers. In the same study, the source of this difference was related to the laboratory applications carried out by the ST candidates after the theoretical endeavors. In this context, it is thought that
thanks to the experiments carried out by PSSTs, they may have developed an insight into how knowledge is formed by practicing the topics covered in various theories.

In the learning effort dimension, it was determined that the average scores of the PSEMTs and PSSTs were higher than that of the PSCTs. Contrary to the results obtained in this study, in some studies, it is stated that there is no significant difference in the degree of the program variable in the belief dimension regarding "learning depends on effort and ability" (Eroğlu & Güven, 2006; Jehng, Johnson, & Anderson, 1993). In another study conducted with teachers, when social studies teachers and other branches were compared in terms of department variable, a difference was found in favor of social studies teachers in the sub-dimension of learning among the EBDs (Kaya & Ekiçi, 2017).

In the dimension of certainty of knowledge, the ideas that "scientific knowledge is definite and absolute," and that "scientists reveal facts as a result of their research" are dominant in individuals. Analyses show that PSCTs have a higher level of this belief than both PSEMTs and PSSTs. The reason for this concerning the PSSTs; by enrolling in the nature of science course (CoHE, 2018c), they may gain an understanding of scientific knowledge is changeable in the process. It is also evident that it is feasible for the PSEMTs to take courses in the history of mathematics, philosophy of mathematics and, to gain experience about the development of many concepts in mathematics and their development as a mathematical object, during their training (CoHE, 2018d). As an example of this situation, the change and development of the numbers used by different civilizations during the history, therefore, making the numbers more feasible in the discipline of mathematics, can be given (Burton, 2011). On the other hand, in the CT curriculum, the absence of the emphasis on the epistemology of knowledge regarding the context of their specific field education courses (CoHE, 2018a) supports these claims. However, contrary to the results obtained in this study, in a study conducted on ST, it was stated that pre-service teachers developed the belief that scientific knowledge would not change (Eick, 2000).

Epistemological beliefs with its dimensions have been examined in terms of the program variable with the university students many times. While some studies found a significant difference (Can & Arabacıoğlu, 2009; Deryakulu & Büyüköztürk, 2005; Hofer, 2000; Terzi, 2005; Tümkaya, 2012), others reported the opposite (Koç & Memduhoğlu, 2017). However, it was determined that the participants of the study reported no significant difference conducted with the science and physics teacher candidates. Authors also noted that insignificant differences in terms of epistemological beliefs might due to the close relationship of these programs in terms of the field the education courses.

**Inferences on the Relationships Between MI and EBDs**

Findings reveal significant low-level relationships between some MI domains and some EBDs in terms of program variables of PSTs. First of all, the most prominent relationship among PSTs is observed between the MI domains and the learning process dimension of epistemological beliefs. Considering the learning process dimension, the low level of an inverse relationship between PSCTs' PKI, ISI, LMI, VLI, and NI domains is evident. In this dimension, it was determined that there was a positively low-level relationship in all intelligence domains of PSSTs and a low level of positive relationship in ISI and LMI domains of PSEMTs. These results can be interpreted as a process or activity that may lead to an increase in any domain of intelligence of PSSTs might have positive reflections on their beliefs about the learning process and doubt to expert knowledge. In this context, it can be stated that training to be provided to PSSTs in line with MI theory will allow them to learn a topic more deeply; therefore, facilitate their academic achievements. Supporting this conclusion, Yalmançı and Gozum (2013) stated that more successful results were obtained on the instruction of enzymes topic on PSSTs with an education that in line with MI theory compared to traditional instruction. A similar situation is also evident for the two intelligence dimensions in which significant differences were determined among the PSEMTs. However, when it comes to PSCTs, it can be said that this process is reversed in general. In other words, it is thought that an intervention that leads to an
increase in the MI domains of the PSCTs would correspond to a decrease in their beliefs about the process of acquiring knowledge and doubting the knowledge of experts.

Secondly, when the innate/fixed ability dimension of epistemological belief was examined, it was found that there was a low level of a positive relationship between intelligence domains of PSCTs except for the MRI, LMI, and SII domains. The reason for the emergence of this situation can be related to using of teacher-centered approaches in teaching practices (Tanrıseven Üredi & Üredi, 2009; Ünal & Akpınar, 2006) and to a large extent the cause of this refers to institutions providing teacher education. The emergence of teacher-centered approaches as reflections of the expectations of teachers in teaching situations rather than students’ self-confidence (Brousseau, 2002) is also known. This sovereign approach can be explained by the fact that, when the relevant intelligence domains of the PSCTs develop, the ability to learn information may be subject to an institutional limitation due to the acknowledged education system. For PSSTs, this emerged as a low-level negative relationship in the domains of PKI, MRI, VSI, and NI.

When the learning effort dimension is considered, there is a low positive relationship with the LMI domain for PSEMTs, whereas it is inverse for PSCTs. This can be explained by the institutional necessity for PSEMTs that they have to teach more abstract objects in the field education courses of the curriculum, and a more active effort is needed to understand these mathematical objects. For PSCTs, this relationship may be influenced by their requirement of less effort to perceive them since the age group they address is at the level of concrete operations, and the most fundamental concepts in field education (mathematics teaching) are often acquired through concrete objects.

Findings show that though being low-level, there are many relationships between teacher candidates' epistemological beliefs and MI profiles in terms of the program. These relationships, for each program, come together in the same direction (positive or negative) when MI profiles are intersected with any dimension of epistemological belief, suggesting that there may be underlying phenomena causing this situation. However, no other study examining the relationship between teacher candidates’ MI profiles and epistemological beliefs was found. In this sense, it is foreseen that qualitative inquiries with different participant groups and disciplines may reveal the source of these relationships.

From a different point of view, due to the intensity of the courses related to its specific field (CoHE, 2018b), it is understood that each program in the teacher training-related departments provides training explicitly in their respective fields. However, it can be said that this prominent approach is evolving towards an interdisciplinary direction. Therefore, research on STEM education can be given as an example. Interdisciplinary teaching approaches in teacher training departments may affect PSTs' epistemological beliefs and MI profiles. This understanding may bring a new breath to the literature and provide a more solid ground for emerging research. Concluding these, we suggest that researchers investigate how interdisciplinary approaches affect individuals’ epistemological beliefs and MI domains.

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Metaphors of Academics in Turkey for Distance Education

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Abstract

Metaphors are important ways to show how people perceive the world and life around them. By creating metaphors, people show how they position themselves life, and that of other people, their environment, and situations in their minds and what the phenomenon, for which they create a metaphor, means to them in today's world. This has been affected by COVID-19, as conducting education on a distance basis has revealed the need to examine the perceptions of people about distance education. The perceptions of academicians about distance education are also highly important, as they directly affect the learning success and performance of students. In this study, metaphors were addressed in order to determine the perceptions of academicians in Turkey about distance education. In this study, metaphors were collected from 520 academicians working at different universities. The metaphors created by the academicians about distance education were subjected to content analysis and the data were analyzed. As a result of the study, it was determined that the academicians created positive, negative, and neutral metaphors about distance education; however, they mostly used negative metaphors.

Keywords: Metaphor, Distance Education, Academicians, COVID-19.

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INTRODUCTION

A metaphor, which is realized by conveying the meaning of one thing to another (Nikitina & Furuoka, 2008, p. 194), can be defined as the explanation of a conceptual expression with another conceptual expression (Kővecses, 2002). Metaphors, which are a means of reflecting thoughts, also have the ability to shape thoughts and direct human behavior (Strenski, 1989). According to Saban (2004), metaphors are the most powerful mental tools that structure, direct, and control ideas. Shuell (1990) also emphasized the effectiveness and importance of metaphors in human life by stating that a drawing is worth a thousand words, while a metaphor is worth a thousand drawings. Metaphors are important because they mobilize the creative powers that people have, driving them to think and dream. Therefore, they help people to attribute meaning to life. According to Lowery (2013), there are metaphors in all languages and people use these metaphors to reveal their thoughts.

Metaphors, which are used as a tool to know and introduce the world (Zhang, 2009), can be used as effective tools to reveal the perceptions of academicians about distance education and direct the educational activities to be performed, because the metaphors that people use and the way they use them show how they perceive their environment (Lowery, 2013). Also, metaphors are important in influencing people's perceptions (Thibodeau, 2016). Being at the center of both communication and thinking (Potts & Semino, 2019), and reflecting values and beliefs, metaphors affect the behaviors of educators and the practices that they use in teaching (McEwan, 2007). During the COVID-19 pandemic process, it would not be wrong to say that the perceptions of academicians, one of the keystones of education, about distance education will directly affect the education process, due to the transition to distance education all over the world.

Distance Education

The educational needs of people have increased with the rapid development of technology, and traditional educational activities in institutions have become unsatisfactory for the needs and expectations of individuals (Khoshemehr, 2013). In line with these developments, it has been attempted to be created different alternatives to support traditional education, and distant education activities have become a part of people's lives. Distance education, which is conducted in a planned learning-teaching environment, where students and lecturers are located at different places and times, is the method in which content is introduced to students in different ways, such as in print, electronic, or online (Moore & Kearsley, 2012). Today, the basis of distance education activities using mostly internet technology dates back to letter education (Holmberg, 1995). This process, which started with letters, then continued with radio, television, computer, and multimedia. These activities have been continued by using internet and mobile technology since the 2000s (Simonson et al., 2012). Furthermore, with the aid of internet and mobile technologies, virtual reality, augmented reality, digital books, and digital applications are also used in distance education today.

Today, in addition to classical education activities, learning environments have been transformed into web-based learning environments and the importance of providing learning activities in an online manner have been focused on due to its facilities (Cappel & Hayen, 2004). People benefit greatly from distance education services, especially because they do not limit space and time, and they provide easy access to different types of information through the use of technology, offer the opportunity to learn according to an individual’s own pace, and use different methods and techniques to structure the information in mind (Woodard, 2003), and everyone can benefit from educational activities under equal conditions.

Distance education activities, which have been left to the preference of the individual since the beginning, have ceased to be a preference and have become a necessity with the COVID-19 virus that emerged in 2019 and has affected the whole world. Many countries have started to take a series of measures to minimize the likelihood of people in society contracting the virus. One of these measures was to suspend or cease face-to-face education activities. According to the data of the United Nations...
Educational, Scientific and Cultural Organization (2020), education activities were suspended until 24 April 2020 in 166 countries. However, whether it was postponed or stopped, alternative methods have begun to be used due to education being one of the most basic needs. Therefore, in many countries, it was decided to continue education activities through distance education (Zhang et al., 2020).

Distance education was also adopted in Turkey as a result of these developments and the efforts to decrease the speed at which the virus spreads around the world. Distance education using internet technologies began in all educational institutions at the preschool, primary school, secondary school, high school, and university levels. Despite the convenience that it provides, the unpreparedness of the institutions, the teaching staff, and the students caused some problems with the distance education activities in the beginning, but in the following processes, the problems were eliminated and the activities continued.

**Metaphor and Distance Education**

The perceptions and opinions of students and lecturers, who are among the keystones of educational activities, about education systems have an important place in teaching studies. Specifically, the perceptions of academicians about distance education significantly affect student learning outcomes and success (Offir et al., 2003; Zhang & Fulford, 1994). It would not be wrong to say that, based on these data, both the continuity of educational activities and ensuring an effective learning process for students depend on the perceptions of academicians about distance education. This is because the determination of the needs of the students and the direction of the educational activities in line with these needs are provided by the academicians. In this context, providing communication and feedback, which is one of the basic needs of students in distance education, is one of the main duties of academicians (Richardson et al., 2015). According to Moore and Kearsley (2011), the transactional distance perception, which causes possible misunderstandings between academicians and students in different places by creating a psychological and communicative gap, has an important place in communication. It is again the duty of academicians to overcome this transactional distance that occurs in distance education by using different methods and techniques (Moore & Kearsley, 2011).

The content to be presented, together with the communication and interaction dimensions in distance education activities, and the way to present this content, will directly affect the quality of education provided. Appropriate content creation and presentation by academicians to students through different methods and techniques will also play an important role in increasing success. However, achieving all of these points and increasing the efficiency of distance education depends on the perceptions of the academicians about distance education. Academicians who have a positive perception about distance education will make an effort to increase the quality of education. However, if academicians have negative perceptions about distance education, they will avoid making an effort (Offir, Barth, Lev & Shiteinbok, 2003; Zhang & Fulford, 1994). For these reasons, the perceptions of academicians about distance education can be revealed through their metaphors. In this way, the perceptions of academicians about distance education can be determined, and it can be ensured that academicians gain the knowledge, skills, and teaching tools that are necessary to better meet the needs of students (O'Neil, 2006).

In the literature, it is possible to encounter studies conducted in order to collect the opinions of academicians about distance education. Alpaslan (2020) examined the opinions of academicians on the use of distance education to educate gifted students; Aras and Karakaya (2020) examined the opinions of academicians working in sports education institutions about distance education; Çabı (2018) examined the opinions of academicians about distance education and computer literacy; Gürer et al. (2016) examined the opinions of academicians teaching in online courses; Kaya et al. (2017) examined the opinions of academicians about the use of distance education in postgraduate education; Kesim and Altipulluk (2014) examined the opinions of academicians on online courses; Özgöl et al. (2017) examined the opinions of academicians and students on online education. Furthermore, there are also
studies in the literature where metaphors for online education were examined. Ligorio et al. (2016) examined the metaphors used by teacher candidates for distance education; Quinn et al. (2018) examined metaphors for online teacher training; Reinhardt (2020) examined the metaphors for online language teaching; Kaleli Yılmaz and Güven (2015) tried to determine the metaphors of teacher candidates for online education. Although there are studies that have examined both the opinions of academicians about distance education and the metaphors used by students about distance education, there have been no studies examining the metaphors used by academicians for distance education. In this respect, it was thought that the current study would contribute to the literature.

PURPOSE OF THE STUDY

The purpose of this study is to determine the perceptions of academicians working at universities in Turkey about distance education through their metaphors. In order to realize this general purpose, the answers to following questions were sought.

- What are the positive metaphors of academicians about distance education?
- What are the negative metaphors of academicians about distance education?
- What are neutral metaphors of academicians about distance education?

METHOD

In this study metaphor analysis, which is one of the qualitative research method, was employed. Metaphors are the means of understanding nature and the environment, giving meaning to life and experience (Yıldırım & Şimşek, 2016). “In the social sciences, metaphor analysis is a semantic text analysis technique concerned with latent meaning rather than a thematic technique concerned with the manifest meaning of text.” (Ignatow & Mihalcea, 2017, p. 99). According to Morgan (1986), metaphors can be used in research in two ways: describing a situation and improving a process. Qualitative data collection through metaphor is mostly for illustrative purposes. When metaphors are used to illustrate, a situation or phenomenon is described as it is. By asking one or more questions through metaphors, very rich information is obtained on the subject under investigation. The most important point to be considered in this method is to ask the "because" question, which will explain why they liken the given concept to another concept while asking them to be likened to another concept (Yıldırım ve Şimşek, 2016). It is very important to get the answer to this question because individuals give different meanings to different concepts. Thus, metaphors will be used as tools for the creation of reality. Because the metaphors reflect the subconscious of the society or the individual. In this study, metaphors were used to describe and the metaphors of academicians about online education were tried to be determined. The academicians were asked what online education looked like, and the reason for this was asked. Thus, it was tried to determine the perceptions of academicians towards online education.

Participants

Participants of the study consisted of academicians teaching at universities in Turkey during the 2019–2020 academic year. Web sites of universities were scanned and e-mail addresses of academicians were collected. Within the scope of this research, e-mails were sent to 9769 academicians to collect their metaphors, and of those, 680 academicians replied to the e-mails. The data of 120 academicians were eliminated, as they were had not replied with metaphors and the responses of 520 academicians were evaluated. Therefore, 520 academicians, who worked at 59 different universities and 21 different faculties in Turkey, constituted the participants of the study. Of these participants, 228 were female and 292 were male. Participants consisted of with the titles of Prof. Dr. (73), Assoc. Prof. Dr. (122), Assistant Professor Dr. (164), lecturer (83) and research assistant (78).
Data Collection

In order to reveal the metaphors of the participants about distance education, each was asked to complete the sentence “Distance education is like… because…”. The question was asked in Turkish and the answers were received in Turkish. For this purpose, a form was created via Google Forms and the link for the page was sent to the academicians by e-mail. Academicians were asked to concentrate on a single metaphor and include its justification. In order to ensure the validity and reliability of the study, credibility instead of internal validity in quantitative studies, transferability instead of external validity, consistency instead of internal reliability, and confirmability criteria instead of external reliability were used. The steps taken to ensure validity and reliability are explained in the data analysis section.

Data Analysis

In the study, content analysis was used. In content analysis, the voluminous qualitative material is taken, and data reduction and sense-making effort is found, which is intended for determining the core consistencies and meanings (Patton, 2002). The metaphors created by academicians were analyzed using the four stages determined by Saban (2008, pp. 464-467). These stages were as follows: 1) coding and sorting, 2) sample metaphor image compilation, 3) category development, and 4) validity and reliability.

In the coding and sorting stage, first, preliminary draft of metaphores by academicians was created. For this purpose, whether the academicians created metaphors and expressed them clearly was examined. Answers that did not include metaphors were removed. Thus, 160 answers were eliminated and the next step was transitioned.

After removing the weakly structured metaphor images of the academicians, a total of 75 metaphors were found. Then, the sample metaphor image compilation stage was begun. In this stage, the metaphors were sorted alphabetically once more. After that, sample metaphors representing each metaphor were selected. Thus, both the reference source for collecting the metaphors under certain categories, and the validity of the data analysis process and interpretations were ensured.

Next, the category development stage was begun and in this stage, how the academicians metaphorized the phenomenon of online education was examined. For this purpose, 75 metaphors were examined in terms of their subject and source, and relationship between the subject and the source of the metaphor (Saban, 2008). As a result of this examination, the metaphors of the academicians were classified under three themes: positive metaphors, negative metaphors, and neutral metaphors. Positive metaphors were divided into 3 categories, negative metaphors into 6 categories, and neutral metaphors into 2 categories. The determined themes and categories were discussed with two expert academicians (Turkish education specialist) and the final versions were presented.

Then the validity and reliability phase were passed. In the study, credibility instead of internal validity in quantitative studies, transferability instead of external validity, consistency instead of internal reliability, and confirmability criteria instead of external reliability were used.

**Credibility:** Credibility, which is called internal validity in quantitative research; is defined as a reflection of the reality of the data obtained by data collection tools (Merriam, 2013; Yıldırım & Şimşek, 2016). The data collection and analysis process are explained in detail to provide the credibility criterion in the research.

**Transferability:** For the transferability issue, the sample selection and the characteristics of the participants should be clearly stated (Sharts-Hopko, 2002). In the study, sample selection and characteristics of the participants were given and this criterion was met.
Consistency: It can be defined as accepting the events and facts as variable and reflecting this to the research (Yıldırım & Şimşek, 2016, p. 305). An expert (Turkish education specialist) was consulted to ensure consistency. The expert was given a list of metaphors and categories, and asked to match the metaphors with the categories. The matches made were then compared with the matches of the researcher and consistency was calculated using the formula of Miles and Huberman (1994, p. 64). The study was assumed to be reliable, as an agreement with 94% was reached as a result of the analysis. The metaphors that could not be agreed on were discussed and the necessary changes were made as a result.

Verifiability: The data obtained during the research process must be verifiable by the researcher and presented in a meaningful framework (Yıldırım & Şimşek, 2016, p. 306). In this context, opinions were taken from experts working in the field of Turkish education and educational sciences during the research process.

FINDINGS

In this section, metaphors created by the academics were divided into themes and categories, and the themes, categories, and metaphors were given. Furthermore, samples representing the created metaphors were also presented.

Figure 1. Themes and Categories of the Produced Metaphors

Positive Metaphors of Academicians about Distance Education

Findings for the first research question.
Metaphors for the Efficiency Category

The other part of the positive metaphors that the academicians created for distance education was gathered under the theme of "Efficiency". It was determined that the academicians created “Turkish coffee/coffee (9), opportunity (8), book (6), private lesson (2), theater (2), tree (1), and sheep (1)” metaphors in this theme. According to the academicians, distance education was defined as an opportunity due to its ability to use technology, and more modern methods and techniques. It was defined as a book due to providing the opportunity to watch, listen, and study many times; defined as coffee due to opening the mind; and defined as tree and sheep due to offering us products that we can benefit from. The metaphors of some of the academicians were as follows:

*I think distance education is like an opportunity, because it allows us to do many activities that we cannot do in the classroom and be more efficient using different materials.* (P25)

*Distance education is like a book. We can get all the information we want and read (listen to) it whenever we want to.* (P33)

*Distance education is like Turkish coffee, because it is efficient. It keeps us comfortable and fit.* (P110)

*Distance education is like a private lesson, because it gives everyone the opportunity to listen to that lesson wherever they want.* (P252)

*Distance education is like a tree, because it has different features on each of its branches.* (P403)

*Distance education is like a sheep, because we can benefit from its meat, milk, and wool. Just as we benefit from everything from the sheep, we can also take advantage of the opportunities offered by online education.* (P181)
Metaphors for the Freedom Category

Some of the metaphors created by the academicians were also associated with the theme of "Freedom". Academicians created “space travel (10), freedom (8) and bird (6)” metaphors in this theme. According to the academicians, distance education gives people the chance to act freely. Educational activities can be performed in a world without limits using these non-limitations. Some of the metaphors created in this category were as follows:

*I think distance education is like traveling through space, because we can act independently of time and space. We are tactually distant from everyone, but also very close audibly and visually.* (P289)

*Distance education is like freedom, because education can be conducted at home in our most comfortable clothes, using our own equipment, without waiting for anything from anyone.* (P256)

*I think distance education is like a bird. It has wider boundaries, both on earth and in the sky.* (P385)

Metaphors for the Savior Category

When the positive metaphors of the academicians about distance education were examined, it was seen that some metaphors were placed in the "Savior" theme. According to the academicians, distance education has arrived as a savior in today's world, especially because the world is fighting against the COVID-19 virus, and it has ensured that education is not interrupted. In this theme, it was determined that the academicians created “spare wheel (19), first aid kit (7), hero (4), sun (3), bridge (2), light (1), medicine (1) and preserves (1)” metaphors for distance education. It was thought that being suitable for use at difficult times and coming to the rescue of people was effective in the production of these metaphors. Some of the opinions about the metaphors were as follows:

*Distance education is like a spare wheel, because the spare wheel essentially works the same as the original tire. But it only helps us reach the tire shop. It stays with us in difficult times.* (P453)

*Distance education is like a first aid kit, because, although not always used, it is ready to help when needed.* (P160)

*Distance education is like a hero, because it extends its hand and saves us at our most difficult times.* (P504)

*Distance education is like the sun. It rises and illuminates the darkness.* (P244)

*Distance education is like a bridge, because it allows us to pass through difficulties.* (P491)

*Distance education is like medicine, because we do not usually take it, but when we get sick, we take our medicine and recover.* (P376)

When the metaphors created by the academicians for distance education were examined, it was found that some of these metaphors were negative. It was seen that both the number of themes created and the number of negative metaphors created by the academicians were more than those of the positive metaphors.
Negative Metaphors of Academicians About Distance Education

Findings for the second research question.

**Figure 3. Negative Metaphors Created by the Academicians**

**Metaphors for the Artificiality/Apathy Category**

Some of the academicians created metaphors by addressing the "Artificial/Apathy" aspect of distance education, based on the thoughts that both students and teachers did not behave naturally in distance education, that distance education tried to resemble face-to-face education, but could not achieve this, because it is not natural. The metaphors created by these academicians were as follows: “artificial flower (28), virtual world (9), Genetically modified food (8), ice (5), game (4), mask (3), virtual food (3), mechanic (3), stone (2), and mirror (2).” Some of the opinions were as follows:

*Distance education is like an artificial flower. Although the artificial flower visually resembles the real flower, it has no vitality, spirit, or scent. (P389)*

*Distance education is like a virtual world, because the participants are not physically present. (P76)*

*Distance education is like genetically modified food, because even though it looks smooth and more attractive from the outside, the efficiency and benefit obtained are close to zero. (P34)*

*Distance education is like ice, because it is cold and you cannot feel the warmth of the student. (P456)*

*Distance education is like a game. It is exciting, but it is virtual reality in the end. (P318)*

*Distance education is like a mask, because it hides the truth.*

*Distance education is like a virtual meal. Its appearance is quite beautiful, but it is not possible to taste and eat the food. (P272)*
Distance education is like a stone, because it is cold and soulless. (P165)

Distance education is like a mirror, because it shows everything reflected in the glass, but there is no vitality. (P512)

**Metaphors Related to the Desperation Category**

Some of the academicians did in accordance with the theme of "Despair". According to the academicians who created these metaphors, distance education limits people and does not allow them to do something, even though they want it. The metaphors created in this theme can be given as follows: “prison (9), impossibility (6), swimming in a dry lake/pool (4), bird with a broken wing (2), nightmare (1), coach (1), and illness (1).” Some of these metaphors were as follows:

Distance education is like a prison, because in distance education, you have to be constantly in a network coverage area determined by someone. Our limits are clear. (P125)

Distance education is like swimming in a dry lake, because there is no water but we try to swim. All of our efforts are futile. (P307)

Distance education is like impossibility, because no matter how good we try to conduct lessons, it is impossible to achieve it. (P265)

The distance education is like a bird with a broken wing, because we want to fly, but we cannot. It is difficult to perceive whether the student understands the subject without face-to-face interaction. (P449)

Distance education is like a nightmare, because we have complex feelings like expressing, being understood, and having no idea whether we are understood or not. (487)

Distance education is like a coach, because outside intervention is insufficient. We want to be there, tear our hair out, and intervene when the ball or a player approach. (P171)

Distance education is like a disease, because we want to stand up and do business, but it does not allow us. (P10)

**Metaphors for the Inefficiency/Dissatisfaction Category**

Some of the academicians also created negative metaphors on the grounds that distance education could not provide sufficient satisfaction, could not fulfill its duties, its procedures are inefficient and the required efficiency could not be obtained. It was observed that while these academicians created their metaphors, they did not think that distance education was a completely unnecessary tool, but rather an insufficient one. The metaphors created can be given as follows: “low-salt/cold meal (24), ready-made food (16), simulation (14) watching aquarium (12), museum trip (11), looking at a landscape painting (11), unfinished building (6), flat tire (6), salt water (4), barren soil (4), raw fruit (3), moonlight (3), electronic book (2), saving the day (2), unplanned meeting (2), wet towel (2), cheese sandwich (2), and a pen out of ink (1).” Some of the metaphors were as follows:

Distance education is like eating a low-salt meal. It can feed us, but it has no flavor. (P519)

Distance education is like ready-made food, because it is practical and it satisfies our hunger, but is not healthy. (P350)
Distance education is like a simulation, because it is not possible to fully reflect the course content since there is no lesson in real environment. (P446)

Distance education is like watching an aquarium. It looks beautiful at first, but then it is bound to be boring. (P163)

Distance education is like a museum trip, because there is a great spatial distance between the educator and the audience while the educator shares the educational material prepared before, and this is similar to the temporal distance between the author of the work exhibited in the museum and its audience. (P223)

Distance education is like looking at a landscape painting, because we are not in the landscape, but the effect created by the painter can affect us. (P41)

Metaphors for the Lack of Interaction Category

Some of the academicians who created metaphors highlighted the “Lack of Interaction” aspect of distance education, with the thoughts that distance education was one-sided, that healthy communication could not be ensured with students, that students remained passive during the course, and that the student-academician relationship could not be established in the course environment. The metaphors combined under the non-interactivity theme can be listed as “watching movies/videos (47), talking to oneself (33), online chat (19), radio (2), being a storyteller (maddah) (2), and letter (2).” The metaphors created by some of the academicians were as follows:

Distance education is like talking to yourself, because it is not possible to make eye contact with the student and feel the other person. (P494)

I think distance education is like watching movies, because it is a process where the interaction is weak or not available, its boundaries are defined, and mostly proceed unilaterally. (P322)

Distance education is like online chat, because it is like trying to satisfy yourself through the screen without touching any skin. (P133)

Distance education is like a radio, because while we prepare for the lesson and we are trying to express ourselves in the best way, we do not know if the other person is listening to us or scrolling on Facebook on their mobile phone. (P38)

Metaphors for the Restriction Category

Some of the academicians developed their metaphors based on the idea that distance education created obstacles and these obstacles interfered with educational activities. The metaphors in this theme can be given as follows: “wall/curtain (17), fantasy (9), distant lover (7), loneliness (2), balloon (1), customs gate (1), and nutshell (1).” Some of the metaphors created were as follows:

Distance education is like a curtain, because in online education, we cannot see things like gestures and facial expressions, and the reactions of the learners. The screen hides this like a curtain. (P444)

Distance education is like a dream. It is good to dream, but realizing our dreams is not easy. Distance education can also provide learning, but its application is a bit difficult. (P489)
Distance education is like a distant lover. Even if we love each other, distance prevents us from living that love. We cannot really understand if we even love each other. Distant relationships wear us out. (P154)

Distance education is like loneliness, because there are tasks that we have to do, but that feeling prevents us from doing them. (P153)

**Metaphors for the Uncertainty Category**

According to some of the academicians, educational activities performed with distance education cause uncertainty. It is not possible to predict exactly how much the students get, how much they can learn, or whether the education has reached its purpose. Therefore, these academicians created “walking in the dark (7), online shopping (6), puzzles (3), and drum sound (2)” metaphors. Some of the metaphors created were as follows:

*Distance education is like walking in the dark, because you don't know who, what, or how you will encounter something.* (P292)

*Distance education is like online shopping, because it is virtual. You buy without knowing what you will get.* (P56)

*Distance education is like the sound of a drum, because it sounds nice from a distance, but we cannot predict what kind of educational process it will be.* (P1)

*Distance education is like a puzzle. We know the answers to some questions and nobody knows the answers to the others.* (P80)

It was determined that the academicians had neutral metaphors in addition to positive and negative metaphors for distance education. It was seen that the academicians created neutral metaphors based on the idea that gaining efficiency in online education or face-to-face education was related to the individuals.

**Neutral Metaphors**

Findings for the third research question.

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**Figure 4. Neutral Metaphors Created by the Academicians**

According to some of the academicians who created metaphors for distance education, the success of distance education depends on the interests, efforts, and abilities of both the students and
the academicians. Success will be achieved if the necessary attention is paid and the effort is made. However, if this interest and effort is insufficient, no efficiency can be obtained. Some academicians further thought that distance education is no different from face-to-face education. In this respect, the metaphors of the academicians who had a neutral approach to distance education were gathered in the interest/ability and indifference categories. “Field/orchard (14), child (3), and open education (1)” metaphors were included in the interest/ability category and the “face-to-face education (33)” metaphor was included in the indifference category. Some of the metaphors created were as follows:

**Distance education is like a field, because we reap what we sow. Furthermore, if we take care of it, its efficiency will increase. (P394)**

**Distance education is like a child, because it has both new and lacking aspects. However, when raised well, it can be more effective than face-to-face training. (P201)**

**Distance education is like open education, because everything depends on the effort and ability of the student. (P483)**

**Distance education is like face-to-face education, because it offers all of the opportunities of face-to-face education (seeing each other, creating dialogue, etc.). (P17)**

**DISCUSSIONS AND CONCLUSION**

The COVID-19 virus, which broke out in 2019 and devastated the whole world, affected many sectors, including the education sector. Many countries have begun to implement distance education activities based on the fact that educational activities should not be discontinued (Zhang et al., 2020). These implementations, conducted in all educational institutions, have also been adopted by universities. However, the distance education process, in which all segments of society were caught unprepared, brought some problems with it. Academicians, students, and institutions experienced adaptation problems at first, but these problems were significantly reduced in the following periods.

The studies conducted have shown that the perceptions of the academicians about distance education are important for the learning outcomes and success (Offir et al., 2003; Zhang & Fulford, 1994). Therefore, determining the perceptions of academicians about distance education has an important place in guiding the education process. With this study, which revealed the metaphors, it was aimed to determine the perceptions of academicians about distance education.

In line with this study, 520 answers were received from academicians and 75 metaphors were found by combining these answers. The metaphors found were divided into three themes, as positive, negative, and neutral metaphors. Positive metaphors were divided into three categories, negative metaphors into 6 categories, and neutral metaphors into 2 categories.

When the positive metaphors of the academicians about distance education were examined, it was seen that these metaphors were included in the categories of savior, freedom, and efficiency. It was determined that these metaphors were created due to the fact that distance education comes to the aid of people at difficult times, and provides academicians with a wide field of study and the opportunity to use technology. The results of some of the studies in the literature that have examined the opinions of academicians about distance education have shown that academicians had a positive attitude towards distance education. In the study conducted by Alpaslan (2020), the opinions of academicians on the use of distance education in the education of gifted students were collected, and it was revealed that the academicians generally had a positive perception about distance education. In the study conducted by Cabi (2018), the opinions of the academicians about a computer course being taught through distance education were collected, and it was found that the academicians had positive views about distance education. Kesim and Altnpulluk (2014) also observed, in their study, that
academicians regarded distance education positively due to reasons such as being independent of space and time, allowing interaction, and not having a quota limit. Similarly, Özgöl et al. (2017) found, in their study, that academicians had positive thoughts about distance education due to reasons such as providing ease of access and reducing the course load.

Negative metaphors created by academicians were grouped under the categories of non-interaction, uncertainty, despair, dissatisfaction/inefficiency, artificiality/apathy, and limitation. Here, it was understood that the academicians created these metaphors due to reasons such as the fact that distance education did not provide an effective communication environment, its end, and the resulting products were unclear, it left academicians in despair because it limited their areas of freedom, their learning outcomes were not sufficient, there was no natural learning environment, and their limits were clear. The results of some studies in the literature have also shown that academicians had a negative perception about distance education. In a study conducted by Aras and Karakaya (2020), some academicians stated that distance education would create problems and would not be beneficial, and that they did not want to teach their lessons through distance education. Gürer et al. (2016) and Kaya et al. (2017) also found, in their study, that academicians had negative opinions about distance education. Furthermore, reasons such as lowering success, not allowing communication, and increasing workload were other reasons why academicians had a negative attitude towards distance education (Özgöl et al., 2017). According to studies conducted, there is a negative relation between the experience of academicians on providing distance education and their perception about distance education (Alshangeeti et al., 2009; Lloyd et al., 2012; Manderbach et al., 2012). The fact that academicians started to teach through distance education without preparation and by necessity due to COVID-19, and they had no previous distance education experience, may explain their negative perception.

Some of the neutral metaphors revealed that academicians thought that distance education was no different than face-to-face education. Some academicians were found to create metaphors with the idea that success and failure were related to the studies performed and the effort spent. According to these academicians, if distance education is used well, it yields successful results. However, if it is not used well, it causes failure. According to Hotaman (2020), the success of distance education depends on the determination of learning deficiencies and their follow-up.

In this study, in which the metaphors of academicians with regards to distance education were collected, it was revealed that some of the academicians created positive metaphors and had positive perceptions about distance education, while others created negative metaphors and had negative perceptions about distance education. Furthermore, it was determined that some of the academicians did not distinguish between distance or face-to-face education, and they thought that success could only be achieved with effort.

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Rubric for Experiential Training

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Abstract

The aim of this study was to develop a rubric as a measurement tool for experiential educators and with this purpose, we investigated a group of the participants on it. Assessing whether the experiential training process follows all four steps of the experiential learning cycle and determining correct or incorrect applications of the experiential learning theory will be functional to improve the quality of the implementation of the theory. The Rubric for Experiential Training has two main components. One of these components is the concept of Learning Spaces and the other is the concept of Educator Role Profiles. A phenomenological research design was chosen for this study to investigate the experiences of participants with the rubric. The participants of the study were 8 volunteers who took part in a training of trainers at the Experiential Training Center in Istanbul, Turkey. Data of the study was obtained through a focus group interview and analyzed through content analysis and interpreted holistically. According to the views of participants, The Rubric for Experiential Training has important functions such as increasing the level of awareness of planning and implementation processes of experiential training and enabling to receive feedback on the quality of the implementations.

Keywords: Experiential Learning, Learning Spaces, Educator Role Profiles, Rubric

INTRODUCTION

Experiential learning theory, in which the studies of James, Dewey, Follet, Lewin, Piaget, Vygotsky, Jung, Rogers and Freire (who had important contributions to the experiential learning) were influential, was theorized by Kolb in a holistic and concrete model in 1984. Since then, experiential learning theory has formed the subject of thousands of research and postgraduate studies carried out at different disciplines and education levels in many countries. Studies related to the Experiential Learning Theory increasingly continue.

Experiential Learning Theory explains learning as a process in which experiences are transformed into knowledge. Everyone has concrete experiences as a natural result of their interactions with other individuals and their environments. Individuals reflect these experiences in different ways. Reflective observations are effective for individuals to reach abstract notions, principles, and generalizations. The generalizations at issue guide individuals in their later experiences and learning. Hereby, this process continues in the form of a cycle, new experiences are gained, and these experiences play a directive role in later learning (Baker, Jensen, & Kolb, 2002; Kolb, 1984).

The main idea in experiential learning is that learning is a holistic phenomenon and a process based on experience. In this context, the basic propositions of experiential learning theory are summarized as follows (Kolb & Kolb, 2005).

- Learning should be conceived as a process and not as outcomes. In the planning of education, continuous restructuring of the experience should be ensured.
- As a matter of fact, all learning is re-learning. Throughout the learning process, the learners’ ideas can be examined, tested, integrated with new ideas, and new learning can be provided.
- Learning process includes differences such as ideas, reflections, and problem-solving styles of the learners. These differences play a directive role for them in their further learning processes.
- Learning is a holistic process involving experiencing, reflecting, thinking, and acting for consistency purpose.
- Learning occurs in a way that individuals assimilate new experiences and adapt these to the concepts gained through previous experiences and associate these concepts with new experiences.
- Learning is based on the constructivist theory explaining that the learner creates “learning”, but not on the traditional teaching focusing on transferring previously known and immutable ideas.

On the grounds of these propositions, the experiential learning cycle is structured as concrete experience, reflective observation, abstract conceptualization, and active experimentation. In this process, prehension and transformation are the two dimensions supporting each other. Experiential learning cycle has been associated with the learning ways, which are concrete experience and abstract conceptualization in the prehension dimension while it has been associated with reflective observation and active experimentation in the transformation dimension. Learning occurs in the process of resolving the creative tension among these four learning ways. An ideal learning process requires a configuration suitable for this cycle. This process can be summarized as experiencing, reflecting, thinking, and acting (Kolb, 2015).
Two core principles in experiential learning can be stated that learning occurs as a result of experiences, and individuals do not always learn in the same way. Since individuals learn in different ways, learning styles classification, which is one of the important components of the experiential learning theory, has been made. Learning styles can vary depending on individuals’ genetic structures, life experiences, and environmental conditions. According to this, in the beginning, four basic learning styles have been classified namely diverging, assimilating, converging, and accommodating (Kolb, 2000). The consideration that individuals can adopt different learning styles at the same time, and the data obtained from experimental and clinical studies over the years, showed that these four original learning styles (Accommodating, Assimilating, Converging, and Diverging) could be transformed into a nine-style typology which would be able to better define unique individual learning style patterns and reduce the limitations encountered in the old four-style typology (Eickmann, Kolb and Kolb, 2004; Kolb and Kolb, 2005). Thus, learning styles have been grouped as initiating, experiencing, imagining, acting, balancing, reflecting, deciding, thinking, and analyzing. Each learning style has been created with the combination of different learning ways in the cycle, which continues from concrete experience to active experimentation (Kolb & Kolb, 2013). Learning environments created in accordance with the experiential learning cycle are the environments suitable for these different learning styles at the same time. Each student has the opportunity to put the strengths to work, compensate for the weaknesses he/she has, and turn these weaknesses into strengths since he/she is involved in every stage of the cycle.

The Educator Role Profiles

Teaching in the context of the learning cycle and different learning styles has brought with it the need for the educators to reorganize the role they take on for their students. The Educator Role Profile has been created to assist educators to comprehend the teaching role that they prefer and to plan how they can adapt to teaching designed around the learning cycle. Educator Role Profiles emerge as a combination of teaching role preferences, beliefs about teaching and learning, goals related to the education process, preferred teaching styles and educational practices. Educator roles aren’t limited to the individuals who take on official in-class training tasks. This frame can be used for all individuals who “have the role of teaching” in every step of life such as leaders, trainers, parents, and friends. Educator Role Profile defines four role positions namely Facilitator, Expert, Evaluator and Coach. Educators adopt these roles to support students to go through the four stages of experiential learning and maximize their learning capacities (Kolb & Kolb, 2017).

The characteristics related to the Educator Role Profiles developed in the context of experiential learning theory can be summarized as follows (Kolb & Kolb, 2013; Kolb & Kolb, 2017).

The Facilitator Role: In the facilitator role, educators assist students to establish connections with their personal experiences and reflect on these. They adopt a sincere and positive style to reveal the students’ interests, intrinsic motivations, and self-knowledge. They mainly realize this by promoting dual conversations in small groups. They establish a personal relationship with students.

The Subject Expert Role: In the subject expert role, educators assist students to connect their reflections to the knowledge base of the subject. They adopt an authoritative and reflective style. While systematically organizing and analyzing the subject matter knowledge, they generally teach by giving examples, modelling, and encouraging critical thinking. This knowledge is conveyed mainly through lectures and written texts.

The Standard-Setter/Evaluator Role: Educators as standard setters and evaluators assist students to become versed with the application of knowledge and skill so they can meet their students’ performance requirements. They adopt an objective and result-oriented teaching style, which helps them determine the knowledge requirements needed for quality performance. They create performance activities for students to evaluate their own learning processes.
The Coaching Role: Educators who adopt the coaching role teach students to use the knowledge to achieve their goals. To help them learn from their life experiences, they often work with them individually and adopt a collaborative and encouraging style. They help construct personal development plans and provide ways of receiving feedback on performance.

The study of Educator Role Profiles has formed a quite complementary frame for the field of experiential learning. An explanation related to what kind of roles the educators should take on to follow this holistic cycle in their programs has taken its place in the field of experiential learning.

Debriefing is another must of the experiential learning-based education. The experience remains just as an activity unless it is reflected on and conceptualized. A debriefing session, which is well planned to transform experience into learning and is managed properly, is an inseparable part of the experiential learning cycle. The debriefing model set forth by Kolb takes students from experience to learning by enabling them to go through several stages. Stage one focuses on what students feel and experience during the activity. Stage two puts forward different perspectives by correlating an individual’s experience with others’ experiences. Stage three makes students establish a connection between the concepts in the current activity and previously learnt concepts and lead them to think about how to broaden the scope of the activity. Stage four focuses on to enable students to link up the activity and the real world (Kolb, Rubin, & Osland, 1995).

Experiential learning programs are the programs in which the experiential learning cycle is followed both in the methods used and in the whole. For this reason, in the curriculum design process, it is necessary to pay attention not only to the compatibility of each workshop or the method used in each workshop with experiential learning but also to the compatibility of the general flow of the program with the experiential learning cycle.

Learning Spaces

To enable a student to participate in the learning cycle fully, space should be provided to be included in the four modes of the cycle. This learning space should be safe and supportive, but also challenging. It should allow students to be responsible for their own learning processes and allocate time for repeated activities to improve proficiency (Kolb & Kolb, 2013). It is necessary for educators to elaborately set up the learning habitat where learning will occur the most efficiently. The learning space has a meaning far beyond the physical environment where learning occurs. It is a versatile concept comprising physical, cultural, institutional, social, and psychological dimensions of learning in its entirety. All these dimensions come together in the experience of the learner. The concept of learning space is based on the studies of Lewin, Bronfenbrenner, Vygotsky, Nonaka, and Konno, who examined the relationship between the human development and the environment (Kolb & Kolb, 2017). Another concept emphasizing the importance of the learning space is the continuity of the experience, which is one of the elementary concepts in Dewey’s educational philosophy. This continuity regulates the experiences that encourage or impede learning. “The fact that the whole true learning occurs through experience doesn’t mean that all experiences are literally educative. Some experiences teach the wrong. A mis-educative experience has an effect to stop or misdirect the progression of further experiences. Therefore, the primary concern of an experience-based education is to select the type of current experiences which will function fruitfully and creatively in further experiences” (Dewey, 1938: 25-28). For this reason, the increase in experiential learning can be ensured by creating learning spaces encouraging “developmental” experiences for students.

While creating a positive learning space, the feelings of hope and fear inevitably accompany the learning process. The hope is about specialization, understanding, and strengthening that comes with them. Fear, by the way, has many aspects. We are afraid of making mistakes, failing, feeling embarrassed and humiliated in front of others, and even questioning our own identities and self-worth. Thus, our uphill task as educators is to understand the hopes, expectations and fears of the learners and create a learning space where they will get respect and support to overcome their fears and specialize
in their subject matters. A hospitable learning space is a setting where the learners feel safe psychologically; they and their experiences get respect; they meet with an unconditionally positive approach, and a balanced challenge and support. Breaking the ice between the learners, being interested in their experiences, interests, and ideas, and making them feel that they belong to a learning community are the basic characteristics of this positive learning space (Kolb & Kolb, 2017). Another important aspect of this state of “feeling safe” is that it is a necessity set forth by the experiential learning methodology. Learners should be able to share their experiences, feelings, and opinions comfortably as they progress through the experiential learning cycle. And for this, they need a sense of trust that the group will not judge them and respect their feelings.

A learner-centered learning space is an environment in which the educator accompanies the learner in his/her experience; life experiences of the learner and how he/she understands these experiences constitute the starting point of the education. The whole learning process progresses by building itself around the learner’s experience holistically. The role of the educator should also circle around this approach. The whole methodology and the content should take shape based on the active participation of the students. This is a space where the learners’ attention, interests and beliefs are revealed, and the learning process is started based on these. Another prominent characteristic of the learner-centered learning space is that the educator collaborates with the learners. The educator is the expert of the education subject and the practitioner of the teaching-learning process but in the spaces where the educators are in the learner’s position, learners are empowered (Kolb & Kolb, 2017). To build up all these features, it is quite important to get to know the learners, to discover what they expect from the curriculum, what attracts their attention, and to give room where they will contribute to the curriculum as “edifier”.

One of the points worth noting for educators to create an appropriate learning space for experiential learning is to form a ludic learning space. The leading scientists of experiential learning, Piaget, Dewey, and Vygotsky in the first place, emphasized how important play is in the development process of learning. In the experiential learning theory, play and learning are two inseparable elements for human development. The play has an important role not only in child development but also adult development. However, how adults connect with play is different from children. Play occurs in the dialectic between being irrational and rational; playful and serious; imaginary and real, and arbitrary and framed with rules. For this reason, contrary to children who can turn anything they find into a plaything in an instant, adults need to step into a different plane of reality to play a game. Therefore, to create a ludic learning space, a positive and unbiased ecosystem, where they will be able to move on to this different plane of reality, is needed. The primary basic principle of this ecosystem is that playing should be voluntary. Adults play freely and voluntarily in such a space. Another principle is that the game rules are the most important elements that both set the boundaries of this space and maintain it. Play is an excellent tool to create a deep “concrete experience” in the experiential learning cycle (Kolb & Kolb, 2017).

To create a space for conversational learning is another important dimension in creating a learning space. In fact, the main purpose of a dual conversation is learning. During the dual conversation, the individual moves along a learning cycle where speaking and listening are combined. There are many forms of creating a conversational learning space such as creating a physical space where the educator sits in a circle with the learners rather than sitting at a table in front of them or creating an emotional space supported by this physical space and open to listening to each learner. Conversational learning space has two different aspects; the first of which is the boundaries defining and maintaining this space, and the second is the internal process shaping the conversation. As the conversation goes on boundaries reshape the internal processes and internal processes reshape the boundaries. To keep the balance between the experience and reflective dialectic, during the conversation, feelings and abstract rational subjects should be handled elaborately and in a balanced manner. For a balanced discursive and recursive dialectic, it is necessary to allocate appropriate time to the process in which the individuals explain how they understand the handled topic at the beginning, and to the process in which they share their reinterpretation of the topic at the end of the
conversation. To employ individuality and rationality dialectic in a balanced way, the individuals should both express their own thoughts and share their experiences related to these thoughts. To tread a fine line between the status and the solidarity, it is necessary to provide a space, where learners can defend their arguments and connect with others’ arguments. Therefore, the educator should handle the process of conversation as a whole, forge a link between the conversations made in the different periods, and create a conversation space that develops organically based on the learners’ attention and interests (Kolb & Kolb, 2017).

Reflective Thinking and Deep Learning are another two elements to be considered in creating learning spaces. The process of transition from the condition of thinking to the condition of reflective thinking can be defined with three fundamental stages that progress from dualism to multiplicity, from multiplicity to relativism and from relativism to commitment. In the stage of dualism, the world appears to the eyes of the learners as a certainty consisting of only rights and wrongs. There are correct answers for all questions, educators have these answers, and they are responsible for teaching what is correct to the learners. In the stage of multiplicity, knowledge is absolute only in some areas, but in many areas, nothing can be certain. In this stage, uncertainty is considered temporary, each person’s opinion is as valid as everyone’s. The learners realize that not every answer, the educator will give, begin to approach the subject from different perspectives and examine the views of others. In the stage of relativism, learners are aware of that the knowledge is contextual and relative. There isn’t one right or wrong. They begin to analyze the weak and strong sides of their and others’ arguments. Finally, in the stage of commitment, learners are aware of that the knowledge is contextual and relative. There isn’t one right or wrong. They begin to analyze the weak and strong sides of their and others’ arguments. In this stage, the learners select the most appropriate point of view for themselves by testing and evaluating different points of view. They create their own synthesis and this synthesis shapes their own personalized values, lifestyles, and identities at the same time. The notion of deep learning refers to a development process that holistically integrates with the four modes (having an experience, reflecting, concluding, acting) of experiential learning. To create spaces that improve and maintain deep learning, first, it is necessary to provide a space in which learners repeat their experiences and their learning spreads over time. This space requires a process that the educators provide support, and the learners go through the experiential learning cycle, show their performances, and receive feedback. The progress in the process of deep learning takes place in the model of development stages of the experiential learning theory consisting of three stages namely acquisition, specialization, and integration. In the first stage, learning is registrative and performance oriented. In this stage, two learning modes, in which only learning style is emphasized, are used. In the second stage, learning is interpretative and the focus is on learning itself. In this stage, the learner is in a process that includes the three learning modes of the cycle. In the third stage, learning is integrative and development oriented. In this stage, the learner can include four learning modes of the cycle into a holistic learning process called as full-cycle learning. Creating spaces that develop and maintain deep learning requires educators to get into different roles in these spaces. First, an educator needs to discern which relevant development stage the learners are in. The facilitator role is the most appropriate educative role for the learners in the acquisition stage while the standard-setter and evaluator role for the learners in the specialization stage, and the coaching role for the learners in the integration stage. Another key element supporting deep learning is that the curriculum has a methodology enabling to progress through the whole cycle. Hereby learners will be able to progress in a development process touching on the four modes of the cycle. This progress will bring together learning flexibility and facilitate learners to move towards the ultimate point of development called full-cycle learning (Kolb & Kolb, 2017).

Rubric for Experiential Training

Practicing experiential learning in full compliance with the experiential learning theory is directly related to the experiential learner training activities. To meet the needs for the evaluation process of these training activities, it was decided to develop a rubric for experiential training. The assessment of whether the application processes follow all four steps of the experiential learning cycle in the trainer training activities, whether the experiential learning cycle is introduced properly, the knowledge level of the educators about the learning styles, and right or wrong applications of the
experiential learning will be functional to improve the quality of the applications. In general, in the development process of the rubric for experiential training, the steps suggested by Goodrich (2000) was followed, and these steps are respectively listing the criteria, deciding the rubric type (An analytic rubric was developed because the focus was on the evaluation of the process.), determining performance indicators and making level definitions (The highest performing participant gets 4 points while the lowest-performing participant gets 1 point.) and receiving the views of the subject matter experts.

In the rubric for experiential training, two main components, which take place in the theory and explained above briefly, were selected to measure the accordance of a curriculum with the experiential learning theory. One of these components is the concept of Learning Spaces, and the other is the concept of Educator Role Profiles. The learning spaces refer to a learning habitat that is necessary to be designed for an experiential learning-based curriculum. Unless this habitat is built holistically, the learning process in it will not be entirely experiential. Educator role profiles offer a conceptual framework about the necessity for an educator to follow a diversified methodology in the curriculum that moves around the experiential learning cycle. Since learning is considered holistic in the experiential learning theory only when all four modes of the cycle are touched, it is possible to understand whether a curriculum includes the entire experiential learning cycle by observing what roles educators play in these learning spaces. For this reason, while learning spaces define the ecosystem of the curriculum, educator role profiles emphasize the roles that the educators play in this ecosystem. While the concept of learning space defines six different learning spaces in itself, the concept of educator role profiles defines four different educator roles in itself. Thus, the rubric took the subcomponents (6+4=10 subcomponents) of these two main components as a direct reference.

Rubrics consist of criteria that are used to measure performance, behavior, or qualification (Campbell, A., 2005).

Quality Criteria to Be Evaluated

After the determination of ten subcomponents, quality criteria have been developed to ensure each subcomponent to be fully included in a curriculum. In total, 29 quality criteria emerged. Quality indicators with four scales were specified (In total, 116 indicators) to measure how each quality criterion is met in a curriculum. Indicators with four scales were divided into the following basic levels.

Unacceptable: This level means that no data are available in the curriculum to meet the relevant quality criterion (1 point).

Unsatisfactory: This level means that there was an endeavor to add the relevant quality criterion, it was applied quite incompletely and incorrectly, and it needs to be improved greatly (2 points).

Needs Improvement: This level means that the relevant quality criterion takes place in the curriculum prominently, but some qualifications underlined by the theory are still missing and it needs a small improvement (3 points).

Satisfactory: This level means that the relevant quality criterion takes place in the curriculum in a way to include all elementary qualifications indicated in the theory (4 points).

It is suggested to use this qualitative measurement tool with the 180-degree assessment method. At the end of the training, much more significant results will be obtained in the case that both educator(s) and participants score separately, and the curriculum is evaluated by getting an average of the average score of the participants and the average score of the educator(s). Besides this tool can be used as a self-reflection tool that the educators evaluate their previous curricula. Finally, this tool can
be used not only for the purpose of evaluation after the training program ends but also as a checklist for preparation when designing the curriculum.

The components of the Rubric for The Experiential Training and the quality criteria were summarized in the Table 1 below.

Table 1. The components of the rubric for the experiential training and the quality criteria

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>SUBCOMPONENT</th>
<th>QUALITY CRITERION</th>
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<tbody>
<tr>
<td>LEARNING SPACES</td>
<td>Creating a hospitable learning space</td>
<td>Getting to know each other</td>
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<td>Group Dynamic</td>
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<td>Basic Rules</td>
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<td></td>
<td>Creating a learner-centered learning space</td>
<td>Expectations &amp; Contributions</td>
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<td>Methodology</td>
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<td>Participant Assessment</td>
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<td></td>
<td>Creating a ludic learning space</td>
<td>Energizers</td>
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<td>Learning games</td>
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<td>Having fun</td>
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<td>Creating a conversational learning space</td>
<td>Discussion</td>
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<td>Analysis</td>
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<td></td>
<td>Creating a space for reflective thinking</td>
<td>From dualism to multiplicity</td>
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<td></td>
<td></td>
<td>From multiplicity to relativism</td>
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<td></td>
<td>Creating spaces to develop and maintain deep learning</td>
<td>From relativism to commitment</td>
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<td>Learning Styles &amp; Learning Flexibility</td>
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<td>Development Stages</td>
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<td>EDUCATOR ROLES</td>
<td>Facilitator</td>
<td>Experience related to the topic</td>
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<td>Participants’ own experiences</td>
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<td>Reflection</td>
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<td>Subject Matter Expert</td>
<td>Collecting knowledge and analyzing it</td>
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<td>Associating knowledge</td>
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<td>Knowledge sources</td>
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<td>Standard Setter &amp; Evaluator</td>
<td>Setting the standards</td>
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<td>Feedback</td>
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<td>Self-Assessment</td>
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<td>Coach</td>
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<td>Learning Plan</td>
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<td>Real Life Applications</td>
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</table>

The first part of the Rubric for Experiential Training is about learning spaces while the second part is about educator roles (Appendix-I).

Rubric for Experiential Training is the first standardized measurement tool to evaluate the appropriateness of the learning environments created by the experiential educators. In this sense, we believe that it will be functional in self-assessment of trainers, evaluation of the learning environments of learners and trainers, and increasing the quality of experiential learning. In this study, the Rubric for Experiential Training was administered to a group of participants who attended experiential trainer training program and the aim was to get their reflections and suggestions regarding to the rubric.

METHOD

This study, which examines the reflections and suggestions of a group of experiential educators on Rubric for Experiential Training, can be considered within the phenomenological design which is one of the qualitative research methods. Phenomenological design is often utilized to attain a deeper understanding of a phenomenon (Creswell, 2013). Because phenomenological design investigates how individuals comprehend, see, and transfer their experiences to their minds (Patton,
2014). In this study, experiences of the study group of the Rubric for Experiential Training were investigated as a phenomenon. The program of the training of trainers lasted 9 weeks. In one week (56 hours) of the program, face-to-face education was carried out and the rest of the program was interactive online education (24 hours). Online education was carried out in the online platform based on experiential learning theory; DeM-Land (Appendix II). At the end of the program, Rubric for Experiential Training was administered to the participants.

Participants

The Rubric for Experiential Training was applied to 20 participants who took part in a training of trainers at the Experiential Training Center in Istanbul, Turkey in July 2020, and participants’ reflections were requested. 8 volunteers whose professions are teacher, researcher, youth worker, training manager, and psychological counsellor submitted their opinions on the rubric.

Data Collection

Data of the study was obtained through a focus group interview. The purpose of the focus group discussion is to reflect on the perspectives, experiences, and tendencies of the participants about a specified topic (Bowling, 2002). Participants of the focus group interview should be among 4-10 persons. According to Edmunds (2000) if the group consists of more than 10 people, the dynamics of the group could be weakened, the interaction between the participants may lose its effect and the control of the group may become more difficult. In this study, there were 8 participants, and this is an appropriate number for a focus group interview. During the interview, researchers asked open-ended questions to the participants about their experiences, thoughts, and suggestions for the training and the Rubric for Experiential Training. The focus group interview lasted 130 minutes and was recorded with the permission of the participants. After the transcription of the record, participants’ approvals were obtained as well.

Data Analysis

Since there are no generalization concerns in focus group interviews, findings should be presented without digitization (Fern, 2001). In this study, data was analyzed through content analysis. Statements of the participants were quoted directly and interpreted holistically. In this process, two experts in experiential education worked together.

Validity and Reliability

For the internal consistency of the study, and to avoid the researcher bias, two different researchers studied on the content analysis process, deciding the quoting parts separately. After this process match percentage of the content analysis was %89. For the verifiability of the study, the record of the focus group interview was preserved. For the trustworthiness of the study, participants controlled the result of the content analysis and quotes. For the transferability of the study, the research method, characteristics of the participants, data collection and interpretation process were explained in detail.

FINDINGS

The focus group interview was conducted by two researchers as moderators. There were five rounds during the interview. Findings were presented as reflections on The Rubric for Experiential Training based on quotations of the participants’ statements.
Reflections on The Rubric for Experiential Training

Participant 1 stated: “This rubric for experiential training provides feedback to the studies designed and applied and ensures the quality of the evaluations. It enabled me to see the strong and weak sides of my works and evaluate the training activities that I gave as an experiential educator. The rubric will ensure the achievement to the attainments determined by considering the functionality of the experiential learning cycle as a whole. It will have detected at which points the cycle is strong or weak.”

Participant 2 explained: “The rubric is quite meaningful as an evaluation tool showing how inclusive we are in the process of creating a learning space and how much we pay regard to the flexibility to enhance the depth of learning. On the other hand, it gives clues as to in what dimensions educator role profiles can stretch in the process of constructing learning spaces. It let me realize that in my previous training activities, my own potential was prominent rather than the participants’. That is to say, the rubric raised my awareness of how I need to design learning spaces according to educator roles and learning styles during the designation of the training while creating spaces where I can exhibit my professional skills at an optimum level. So much so that because my points related to developing and maintaining deep learning were unsatisfactory, I added some activities to my next training to create these learning spaces. Most of the time, we, educators are quite resistant to change and involvement of the participants in the experiential processes to protect our existing spaces. Of course, there are many other reasons but when we interpret the situation in terms of experiential training: training activities will gain meaning from some aspects such as the creation of learning depth, improvement of educator competencies, involvement of the participants in the learning process through their life experiences, the functionality of abstract conceptualization and transformation processes, and evolution of acquired knowledge into an experience rather than access to information. It will shed light on how much educators are able to share the authority by decentralizing it in the activities that they will carry out with the experiential training methodology. It will also give the opportunity to recognize all patterns, which may affect learning processes, and operationalize the mechanism of inclusion into learning.”

It is understood that the rubric raised the participant’s (as an experiential educator) awareness of the process and the applications and contributed to self-regulation following this awareness.

Participant 3 stated: “A rubric prepared in detail. A wonderful tool that I can use as a checklist when planning my training as a teacher... It enabled me to realize the points that I overlooked when preparing the content of my training. It let me get prepared in a more planned and holistic way. I will be able to plan my next training activities more extensively. It will ensure the planned sessions to remain in the center of experiential training.” With these comments, participant 3 pointed out the function of the rubric in the stage of planning according to the experiential learning theory besides its function of evaluation.

Participant 4 was an academician and indicated his/her opinions as: “After the training activities that I will carry out in accordance with the experiential learning cycle, it will be useful for self-assessment. I want to use it to improve my training in keeping with the cycle and raise my self-awareness of the shortcomings in the training activities. The rubric enabled me to realize both whether I move through the experiential learning cycle and how much I could do this in the training that I designed, and at what rate and in what proportion the activities included (to complete the cycle) in the training module are completed in compliance with the cycle. In this way, it helped me revise two dimensions of my training both quantitatively and qualitatively and develop a kind of self-awareness. When educators test their training activities according to the rubric at every turn, this will contribute to the completion of the experiential learning cycle in an excellent/ideal way. When educators evaluate and improve their training and professional skills after each training, this will contribute to the experiential training as well. Besides, since the rubric requests to give information about the experiential training, it will contribute the experiential training to become widespread and popular. Participant 4 also made some suggestions: “Especially for the short-term programs, it was
difficult to answer the questions in the sections Deep Learning and Learning Plans, and Real-Life Applications. Maybe, the answer choices for short and long-term programs can be differentiated. Or different versions of the rubric can be developed for the short-term modules and the long-term programs.

Similar to the other participants, participant 5 drew attention to the fact that the rubric raised the awareness in terms of the teaching profession and explained: “The rubric is very useful and raises the awareness of trainer identity, and also reveals the tendency of an educator in the teaching profession. First, it provides educators to realize the main features and tendencies of trainer identities. Additionally, it may let them see in which areas (regarding the studies in the field of education) they can be more flexible.”

Participant 6 indicated: “I think the rubric shows what and how learners learn and where they have rough edges. It doesn’t focus on absolute success or absolute failure. And this provides learners with motivating support to improve themselves and an opportunity for self-knowledge. This rubric let me (as a youth worker) realize that the evaluation methods used in the youth work were lacking. We learn what and how learners attain, awareness is gained but we fall short in maintaining it. It is required to develop the methods that will ensure this continuity. The use of this rubric, I think, will enable the experiential training to be practiced in the daily life more, because the learners’ acquisitions from the experiential training and the return of these acquisitions will be better understood.”

Participant 7 who is a training manager shared his/her reflections and stated: “This rubric is favorable in terms of offering a clear perspective in the context of learning spaces and educator role profiles. The fact that it enabled me to ascertain a subject on deep learning that I considered as deficient fostered my awareness seriously to develop the process. The application of the rubric after the determination of learning styles and educator role profiles specifies your position in the cycle more transparently. In this regard, the application of the whole content by the educators can make a more significant contribution because the feedbacks of the three determinants are different from each other and as you gain experience in the cycle you are able to make sense of it more. Thanks to the rubric enhancing the self-awareness of the educator, your road map becomes more meaningful.”

Participant 8 who is a psychological counsellor stated: “The rubric, I think, was an excellent tool to reflect on a curriculum and receive feedback on our design. The fact that it handled the curriculum design from such a broad framework opened my mind. After the application of rubric, frankly, I started to design the training programs from a broader framework. Before I met the Experiential Training Centre, I used to design something to transform knowledge or an idea into an experience. After I met the Experiential Training Centre my mind was opened with the idea that the experience would serve the cycle. With this rubric, I realized how much before and after of this experience also serve the learning process. I told myself that designing a module isn’t just about creating an experience and analyzing it. I think when educators use this rubric; participants will be involved in the experience much more and after the experience, a deep learning process will occur firmly. Besides, a personal feedback mechanism is working here. Somehow, not every trainer is able to work with a team and may receive feedback to the training program or module that he/she prepared. This tool gives the trainer an opportunity to receive feedback both in the frame of his/her profession and making learners experience the cycle. And this actually serves the process of planning and carrying into active practice again while preparing this module. I believe that this tool actually gives room to educators to complete their own learning cycles in the instructional design. I think the idea that the educator prepares this process by going through that cycle during the preparation of an experiential learning space is exciting. In this regard, I think the rubric contributes to experiential learning.”

As it is seen, related to the rubric developed for the training of experiential trainers, important advantages were addressed such as raising the level of awareness regarding the process of planning...
and implementing, enhancement of the quality, and maintaining applications in compliance with the experiential learning theory. It was emphasized that different versions of the rubric (prepared for the training of trainers) could be developed for different types and levels of education and hereby, educational practices in different levels could be carried out in accordance with the experiential learning theory.

To examine the participants’ opinions about the rubric in more depth two of the authors held an online focus group meeting with five female and two male participants on July 27, 2020. The focus group interview lasted 1 hour and 17 minutes. After the purpose of the focus group meeting was explained participants’ opinions and suggestions about the Rubric for Experiential Training were received.

In the first round, a question inquiring the intelligibility of the rubric was asked to reveal whether the rubric was applicable for different groups. Participants were asked whether this measurement tool was intelligible for the individuals who didn’t attend the experiential learning training of trainers but want to carry out learning activities in accordance with the experiential learning theory. Answers given to this question were in the direction that the individuals who didn’t attend the training activity could also use the rubric. Participant 1 explained: “It can be applied easily. Even it may produce more accurate results. That is to say, individuals who already received training about experiential learning; the ones with a vast accumulation of knowledge may lay low and sing small, that is they can give acceptable and satisfactory answers. Of course, this situation is possible for all self-reported data collecting tools but what I mean is this rubric is intelligible, its structure is available to be applied to different individuals, I wanted to say this. Participant 2 explained: “... This rubric is like a confrontation...” Participant 3 indicated: “I think the correct target audience of this rubric is the ones who attended this training like us. The others can’t answer thoroughly. Let’s talk about creating a positive learning space, I know since I have been giving training to teachers. To the question of whether the participants know each other well enough if only the names are known, the teachers will answer yes. However, a welcoming environment created through icebreakers and acquaintance games is actually in question. I think those who are far from the fields of non-formal learning and experiential learning can’t answer in a way to serve the purpose. They can give answers, but their perspectives will be different from ours.” At this point, the interviewer felt the need to remind the participants of the explanation regarding the grading in the rubric. The indicators defined for the four-point competency in the question “Did participants get to know each other?” were reminded. Following this reminder, the participant said: “Yes, then, maybe, I need to change the statement like the ones who didn’t participate in the training of experiential trainers cannot reach the fourth level. That is actually understandable when we look at the explanations.” Participant 4 explained the opinions and gave some suggestions: “Some questions, I think, can be answered by the persons who didn’t take the training of experiential trainers. It will also be beneficial for the trainer to reflect. When I examine in terms of in-depth learning, some items wouldn’t work for them in this sense. I think this rubric should be developed in different versions for short, long-term training activities, for the ones who attend, do not attend the training of trainers, or the ones who provide formal or non-formal education.” Other participants agreed with this view.

In the second round, participants were asked whether the rubric could be applied with 180-degree feedback or not, and the opinions of the trainers and those who attended the training to carry out a mutual assessment. Participant 3 told: “The trainer could think himself/herself to have practiced very well, he/she could assess himself/herself by taking credit for his/her practices. However, it will be very good to apply it mutually to observe whether this redounded on the participant in the same way.” Participant 1 indicated a view: “Applying it in this way will be very useful as a feedback tool. We can see where the common views of the trainer and the participant come together. Everything may look very beautiful from the lens of trainers or nothing may be good but let’s see from what perspective the participants see. The mutual application will be good to determine whether any participants were neglected or if there are ones who didn’t get involved in the process.” Participant 6 stated: “To apply the rubric 180 degrees will raise the participants’ awareness, they can assimilate
the experiential training more.” With the consensus of all participants, an idea was formed that addition can be made to the suggestion given in the previous question round. In answers given to the previous question, the suggestion was that the versions of the rubric could be developed for short and long-term training activities and formal and non-formal education. In this round, a consensus was reached that the development of a trainer-learner version of the rubric will bring to more valid results. When participant 7 told: “It will be good if this rubric is applied both at the beginning and at the end of the training. That is, I want to say an application like pre and post-tests. We do these in our studies and research in the field. New questions may also be added to check the consistency of the answers.” the other participants told that this rubric was more suitable for the end of a process. Following these opinions, all participants agreed that before attending the training, individuals who would participate in the training of trainers could be provided to evaluate any X program that belonged to them according to the rubric, and after that, at the end of the training, they could evaluate their own programs with the same rubric again and the results would be examined. It was indicated that it would be appropriate to name the developed rubric as “Experiential Training Rubric 1.0”, develop different or updated versions in the direction of applications and number these like 1.1 or 2.0.

In the third round, considering the fact that almost every participant indicated in the written reflections that the rubric created educators’ awareness, their opinions were asked on this subject. Participant 2 told: “The fact that it enables educators to reflect on the training that they applied is actually like metacognitive thinking.” Participant 1 explained: ‘I gave both formal and non-formal training. Especially, I had difficulty in formal education because I felt that I was a coach but not a teacher. That is there is self-awareness but if you give training at more than one field or place, the answers actually change according to the context, we also realize this. Educator role profiles aren’t also stable; we also see this. It is important in terms of making educators realize on what subjects, how much and to what extent they can stretch. That is, I can say that it creates self-awareness of the educator’s own area of freedom. In addition, speaking for myself, I want to add that it enabled me to be aware of the difference between what I want to do and what I do.” Participant 3 explained: “The rubric actually made me say that Oh! Actually, I didn’t do very well for the things that I thought I did very well especially when I took stock of myself according to the indicators. I said that I didn’t pay attention to this. My awareness increased in this respect. This has been a checklist for a trainer, and I liked this very much.” Participant 5 stated: “If you don’t know so much about the subject, it raises your awareness; if you do know about the subject, the awareness of the dimensions increases. That is, in either case, it increases. It is important in terms of keeping in the experiential learning cycle. Are you moving through the cycle? How right are you moving through the cycle?” Participant 6 told: “I agree with my friends. I assumed that I applied experiential training in my previous training activities when I gave learners experience and make them talk about that experience. I didn’t outside the box, I realized this. Applying this rubric actually meant for me to re-experience the stage of concrete experience. So, the cycle continued in a spiral. My occupation as a trainer is also an experience and the rubric at the end of it is a new experience. That is, I didn’t get into a new cycle after giving the training, but I am going into a new experience with the rubric, I realized this. Simply, this has been a breaking point for me. The things that I said I had short here dragged me into a new experience. The rubric has become a trigger for me.” Participants 4 told: “A road map and gives autonomy, I think.” and Participant 7 indicated: “It actually provides to realize their own learning styles as well as educator roles.”

In the fourth round, participants were asked how the existence of such a rubric could be evaluated in terms of a contribution to the experiential learning theory alongside the inventories Kolb’s Learning Styles and Educator Role Profiles. Participant 1 contributed: “We all have different backgrounds. It can be revealed with this rubric, which ones of the people with trainer identity and having different foundations have a facility with experiential learning, and a contribution can be made to the experiential learning theory in this regard. Depending on this, it can be revealed in what fields experiential learning can be applied easily or in what fields it has many limitations. With the contribution of all participants, there has been a consensus in the idea that a blow would be struck by associating the answers given in the rubric to the answers given to the independent variable questions
(which will be added to the top of the developed rubric) such as age, job experience, and level of education.

In the fifth round, participants were asked what they would like to add in general. Participant 4 contributed: “We, for example, knew about the learning spaces theoretically but in practice, we see what we should do to reach the ideal situation. In the educator role profiles, the rubric answers when I do what, I will become a subject matter expert, and when I do what, I will become a coach. So, this is not only an evaluation tool for me but also a tool for learning.” Participant 2 explained: “Since the questions in the second part, in the educator role profiles, embodied the requirements that I met, they were good for me.” Participant 3 explained: “Actually, as in the other measurement tools used in the experiential learning theory, situations, where people are dominant, are determined; there is no labelling for you; I think a very beautiful application to make up shortages.” Participant 1 stated: “When it is considered in terms of educator roles, the rubric is very didactic in the way of telling you that you will get 4 points if you do this and this. That is, you see, when I do what and with which indicators, I will reach that profile.” With the consensus of all participants, it was stated that there might be a misunderstanding such as perceiving the profile of subject matter expert as a person who was really an expert on a subject, and it was necessary to feature that this was a role by emphasizing it in the training activities. Participant 5 contributed to the process with the views: “It became very good that the indicators of the educator role profiles were written so clearly. If there are conceptual confusions, this can be eliminated.” and Participant 7 indicated: “It was important for me to see that I myself could stretch both in the learning spaces and in the educator role profiles.” Participant 6 contributed: “In some way, one or two questions may be added to the rubric regarding what extent the experiential learning philosophy is adopted, or a blank section can be left where the person (the one the rubric is applied to) can write an opinion. I think the fact that it is a qualitative measurement tool, and there isn’t only one-point categorization, is an important factor in answering it honestly. Participant 2 shared a view in reply to this contribution: “All in all if scoring like percentage value is included, it can increase the motivation”.

CONCLUSION

In this study, it was considered that carrying out experiential learning implementations in accordance with the experiential learning theory is directly connected to the experiential learning training activities, and therefore the Rubric for Experiential Training was developed as an alternative measurement tool to evaluate these training activities. According to the views of participants, The Rubric for Experiential Training has important functions such as increasing the level of awareness of planning and implementation processes of experiential training and enabling to receive feedback on the quality of the implementations. It was revealed that the rubric enabled educators to see the shortcomings that they needed to improve, in this context, it was beneficial in terms of both planning and implementing. The rubric was considered as a motivation source for the educators. It was emphasized that the short and long versions of the rubric, which was developed for different types and levels of education, could be created, hereby, training activities at different levels could be carried out in compliance with the experiential learning theory. The Rubric for Experiential Training was developed not only as a checklist. It was developed to determine to what extent the experiential learning philosophy could be reflected in the learning settings, and with the aim of guiding educators and participants in a sense. Rubrics are authentic measurement tools encouraging critical thinking, reflecting and self-assessment. In this respect, the fact that a rubric has been developed to apply in the experiential learning training activities will help clarify expectations in terms of experiential learning implementations.
REFERENCES


### Appendix I- Rubric for Experiential Training

<table>
<thead>
<tr>
<th>1. LEARNING SPACES</th>
<th>Unacceptable</th>
<th>Unsatisfactory</th>
<th>Needs Improvement</th>
<th>Satisfactory</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1. Creating and Holding a Hospitable Space for Learning</td>
<td>There was no activity for learners to get to know each other.</td>
<td>Educator and some of the learners learned the names of each other.</td>
<td>Educators and learners learned the names of all participants.</td>
<td>Educators and learners learned the names of all participants and they got to know each other personally.</td>
</tr>
<tr>
<td>1.1.1. Getting to know each other</td>
<td>There was no activity for learners to get to know each other.</td>
<td>Educator and some of the learners learned the names of each other.</td>
<td>Educators and learners learned the names of all participants.</td>
<td>Educators and learners learned the names of all participants and they got to know each other personally.</td>
</tr>
<tr>
<td>1.1.2. Group Dynamics</td>
<td>There was no activity to build the sense of trust and break the ice among the group.</td>
<td>Ice were broken among some of the learners and educators of the group.</td>
<td>Ice were broken among all the learners and educators and group dynamics were increased.</td>
<td>Ice were broken among all the learners and educators; group dynamics were increased, and a team spirit was established within the group.</td>
</tr>
<tr>
<td>1.1.3. Ground Rules</td>
<td>There were no ground rules set.</td>
<td>The ground rules for ensuring the respect and efficient group learning process was set only by the educator.</td>
<td>The ground rules for ensuring the respect and efficient group learning process was set by involvement of educator and some of the learners.</td>
<td>The ground rules for ensuring the respect and efficient group learning process was set by active involvement of educator and all learners.</td>
</tr>
</tbody>
</table>
1.2. Creating Learner-Centered Learning Space

<table>
<thead>
<tr>
<th>1.2.1. Expectations &amp; Contributions</th>
<th>Unacceptable</th>
<th>Unsatisfactory</th>
<th>Needs Improvement</th>
<th>Satisfactory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learners were not asked to share their expectations from and potential contributions to the program.</td>
<td>Learners only shared their expectations and/or contributions.</td>
<td>Learners shared their expectations from and contributions to the program and the program was revised by the educator accordingly.</td>
<td>Learners shared their expectations from and contributions to the program, the expectations and contributions were analyzed together with the learners and the program was revised by active involvement of learners.</td>
<td></td>
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</tbody>
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<table>
<thead>
<tr>
<th>1.2.2. Methodology</th>
<th>Unacceptable</th>
<th>Unsatisfactory</th>
<th>Needs Improvement</th>
<th>Satisfactory</th>
</tr>
</thead>
<tbody>
<tr>
<td>The methods were not chosen considering the learning preferences/difficulties of the learners. A monotone methodology is followed.</td>
<td>Some different methods were chosen considering the learning preferences/difficulties of the learners according to the assumptions of the educator.</td>
<td>Variety of methods were chosen considering the learning preferences/difficulties of the learners according to the analysis on the learners made by the educator.</td>
<td>Variety of methods were chosen considering the learning preferences/difficulties of the learners according to the analysis on the learners made by the educator. Learners had the space to reflect on/give feedback to the methodology. Educator re-adapted the methodology accordingly.</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>1.2.3. Evaluation by Learners</th>
<th>Unacceptable</th>
<th>Unsatisfactory</th>
<th>Needs Improvement</th>
<th>Satisfactory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program was not evaluated by the Learners</td>
<td>Program was evaluated by the learners only at the end of the program</td>
<td>Program was evaluated by the learners during and at the end of the program.</td>
<td>Program was evaluated by the learners at the end of the program and during the program. The feedbacks during the program were taken into consideration and the programs was revised accordingly.</td>
<td></td>
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</tbody>
</table>


<table>
<thead>
<tr>
<th>1.3. Creating a Ludic Learning Space</th>
<th>Unacceptable</th>
<th>Unsatisfactory</th>
<th>Needs Improvement</th>
<th>Satisfactory</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.3.1. Energizers</td>
<td>There was no energizer implemented.</td>
<td>Energizers were implemented however profiles of the learners and dynamics of the group weren't considered while choosing the energizers.</td>
<td>Energizers were implemented and chosen by taking only profiles of the learners into account.</td>
<td>Energizers were implemented and chosen by taking profiles of the learners and dynamics of the group into account.</td>
</tr>
<tr>
<td>1.3.2. Learning Games</td>
<td>There was no learning game implemented.</td>
<td>Learning games were implemented however the learners weren't prepared to be ready to play together.</td>
<td>Learning games were implemented after the group was prepared through warming up activities to play together, however there was no cooling down activity to support the learners to step back to real life.</td>
<td>Learning games were implemented after the group was prepared through warming up activities to play together and there were cooling down activities to support the learners to step back to real life.</td>
</tr>
<tr>
<td>1.3.3. Having Fun</td>
<td>There was no informal social activity where the learners played and had fun together.</td>
<td>There were informal social activities where the learners played and had fun together however the educator was not involved.</td>
<td>There were informal social activities where the learners played and had fun together where the educator was involved too however the activity was organized only by the educator.</td>
<td>There were informal social activities where the learners played and had fun together where the educator was involved too, and the activity was organized the learners with the support of educator.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>1.4. Creating Space for Conversational Learning</th>
<th>Unacceptable</th>
<th>Unsatisfactory</th>
<th>Needs Improvement</th>
<th>Satisfactory</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.4.1. Discussion</td>
<td>There was no activity for the learners to discuss on the subjects.</td>
<td>There were discussion activities on subjects only between the educator and the learners but not among the learners.</td>
<td>There were discussion activities on subjects among educators and learners however the discussions were dominated by one or few of the learners.</td>
<td>There were discussion activities on subjects among educators and learners that listening and talking were balanced by appropriate moderation.</td>
</tr>
<tr>
<td>1.4.2. Debrief</td>
<td>There was no debriefing after experiences.</td>
<td>There were only evaluations of the experiences/activities.</td>
<td>There were debriefings however they were not structured according to all four steps of the learning cycle; experience, reflect, think, act.</td>
<td>The debriefings were structured according to all four steps of the learning cycle; experience, reflect, think, act.</td>
</tr>
<tr>
<td>1.4.3. Progress of Conversations</td>
<td>The conversations during the program were not interlinked with each other.</td>
<td>Sometimes educator made connections between the conversations happened in different times.</td>
<td>Educator made connections among conversations and facilitated the development of the conversations only according to the subject-matter.</td>
<td>All conversations during the program were connected by the educator and the educator facilitated the organic development of conversations according to both interests of the learners and the subject-matter.</td>
</tr>
</tbody>
</table>
1.5. Creating Space for Reflective Thinking

<table>
<thead>
<tr>
<th>1.5.1. Dualism to Multiplicity</th>
<th>Unacceptable</th>
<th>Unsatisfactory</th>
<th>Needs Improvement</th>
<th>Satisfactory</th>
</tr>
</thead>
<tbody>
<tr>
<td>There was no sharing activity to reveal the learners' stereotypical thoughts on the subjects about themselves and about others.</td>
<td>There were sharing activities only to reveal the learners' stereotypical thoughts on the subjects about themselves and about others however they didn't have chance to listen-discover others' different point of views.</td>
<td>There were sharing activities to reveal the learners' stereotypical thoughts on the subjects about themselves and about others and listen-discover others' different point of views.</td>
<td>There were sharing activities to reveal the learners' stereotypical thoughts on the subjects about themselves and about others and listen-discover others' different point of views. The learners had space to critically think and reflect about those different point of views.</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>1.5.2. Multiplicity to Relativism</th>
<th>Unacceptable</th>
<th>Unsatisfactory</th>
<th>Needs Improvement</th>
<th>Satisfactory</th>
</tr>
</thead>
<tbody>
<tr>
<td>There was no debate activity where the learners challenge their arguments.</td>
<td>There were debate activities where the learners only challenge their arguments.</td>
<td>There were debate activities where the learners challenge their arguments and analyze the disagreements in detail.</td>
<td>There were debate activities where the learners challenge their arguments and analyze the disagreements in detail. The learners had space to critically re-think about their assumptions.</td>
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</table>

<table>
<thead>
<tr>
<th>1.5.3. Relativism to Commitment</th>
<th>Unacceptable</th>
<th>Unsatisfactory</th>
<th>Needs Improvement</th>
<th>Satisfactory</th>
</tr>
</thead>
<tbody>
<tr>
<td>There was no activity for the learners where they try to use alternative approaches and point of views.</td>
<td>There were activities for the learners where they try to use alternative approaches and point of views, but they didn't have space to reflect on their experience of dealing with ambiguity and the relativism.</td>
<td>There were activities for the learners where they try to use alternative approaches and point of views. They had space to reflect on their experience of dealing with ambiguity and the relativism.</td>
<td>There were activities for the learners where they try to use alternative approaches and point of views. They had space to reflect on their experience of dealing with ambiguity and the relativism and they had opportunity to structure their own learning about which subjects they will research more.</td>
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</tbody>
</table>
1.6. Creating Spaces to Develop and Sustain Deep Learning

<table>
<thead>
<tr>
<th>Unacceptable</th>
<th>Unsatisfactory</th>
<th>Needs Improvement</th>
<th>Satisfactory</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.6.1. Learning Styles &amp; Learning Flexibility</td>
<td>There was no activity to introduce Kolb Learning Styles.</td>
<td>Kolb Learning Styles was introduced however there was no implementation to discover the learners’ learning styles.</td>
<td>Kolb Learning Styles was introduced to the learners and learners discovered their learning styles through Kolb Learning Styles Inventory or any other tool.</td>
</tr>
</tbody>
</table>

1.6.2. Development Stages

<table>
<thead>
<tr>
<th>Unacceptable</th>
<th>Unsatisfactory</th>
<th>Needs Improvement</th>
<th>Satisfactory</th>
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<tbody>
<tr>
<td>The concept of experiential learning theory of development was not introduced.</td>
<td>The concept of experiential learning theory of development was introduced to the learners however there was no activity to support learners to discover at which development stages they are about the program.</td>
<td>The concept of experiential learning theory of development was introduced to the learners and there were activities to support learners to discover at which development stages they are about the program.</td>
<td>The concept of experiential learning theory of development was introduced to the learners and there were activities to support learners to discover at which development stages they are about the program. The educator played appropriate educator roles for each learner according to the development stage of him/her.</td>
</tr>
</tbody>
</table>

2. EDUCATOR ROLES

2.1. Facilitator

<table>
<thead>
<tr>
<th>Unacceptable</th>
<th>Unsatisfactory</th>
<th>Needs Improvement</th>
<th>Satisfactory</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1.1. Experience on Subjects</td>
<td>The learners didn't experience any of the subjects of the program.</td>
<td>Some of the subjects of the program was experienced by the learners through playing/sensing/real life experiences.</td>
<td>All subjects of the program were experienced by the learners through playing/sensing/real life experiences however learners didn't have space to talk about their feelings on these experiences.</td>
</tr>
<tr>
<td>2.1.2. Learners Experiences</td>
<td>The learners didn't have any opportunity to share their previous experiences about the program.</td>
<td>The learners had the opportunity to share their previous experiences on some of the subjects of the program.</td>
<td>The learners had the opportunity to share their previous experiences on all subjects of the program however they didn't have space to talk what they feel about these subjects.</td>
</tr>
<tr>
<td>2.1.3. Reflection</td>
<td>The learners didn't have space to reflect on their ongoing improvement.</td>
<td>The learners sometimes had space to reflect on their ongoing improvement.</td>
<td>The learners constantly had space to reflect on their ongoing improvement.</td>
</tr>
</tbody>
</table>
### 2.2. Subject Expert

<table>
<thead>
<tr>
<th>2.2.1. Gathering &amp; Analyzing Information</th>
<th>Unacceptable</th>
<th>Unsatisfactory</th>
<th>Needs Improvement</th>
<th>Satisfactory</th>
</tr>
</thead>
<tbody>
<tr>
<td>The learners didn't have any opportunity to search, gather/receive information on the subjects.</td>
<td>There was space where the learners had opportunity to search, gather/receive information on only some of the subjects.</td>
<td>There was space where the learners had opportunity to search, gather/receive information on all the subjects.</td>
<td>There was space where the learners had opportunity to search, gather/receive information on all the subjects and they had the opportunity to compare and critically analyze these concepts.</td>
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<table>
<thead>
<tr>
<th>2.2.2. Linking the knowledge</th>
<th>Unacceptable</th>
<th>Unsatisfactory</th>
<th>Needs Improvement</th>
<th>Satisfactory</th>
</tr>
</thead>
<tbody>
<tr>
<td>There was no space for the learners to link the new abstract information with the previous concrete experiences and concepts.</td>
<td>There was space for the learners to link some of the new abstract information with the previous concrete experiences and concepts.</td>
<td>There was space for the learners to link all the new abstract information with the previous concrete experiences and concepts.</td>
<td>There was space for the learners to link all the new abstract information with the previous concrete experiences and concepts and they had opportunity to create their own knowledge.</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>2.2.3. Resources of Knowledge</th>
<th>Unacceptable</th>
<th>Unsatisfactory</th>
<th>Needs Improvement</th>
<th>Satisfactory</th>
</tr>
</thead>
<tbody>
<tr>
<td>There were no resources of knowledge shared with the learners.</td>
<td>Resources of knowledge on some of the subjects were shared with learners by the educator.</td>
<td>Resources of knowledge on all subjects were shared with the learners by the educator.</td>
<td>Resources of knowledge on all subjects were shared with the learners and the learners had the opportunity to bring and share their resources.</td>
<td></td>
</tr>
<tr>
<td>2.3. Evaluator</td>
<td>Unacceptable</td>
<td>Unsatisfactory</td>
<td>Needs Improvement</td>
<td>Satisfactory</td>
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</tr>
<tr>
<td><strong>2.3.1. Setting the Standards</strong></td>
<td>There were no performance standards/learning objectives set.</td>
<td>The performance standards/learning objectives were set only by the educator according to the content of the subject.</td>
<td>The performance standards/learning objectives were set by the educator according to the content of the subject and real-life challenges of the learners. This was done by active involvement of the learners.</td>
<td>The performance standards/learning objectives were set by the educator according to the content of the subject and real-life challenges of the learners. This was done by active involvement of the learners and development goals were personalized for each learner together with the learner.</td>
</tr>
<tr>
<td><strong>2.3.2. Feedback</strong></td>
<td>The learners didn't practice their new knowledge and they didn't get feedback.</td>
<td>The learners had chance to try/practice their new knowledge within the course, but they didn't receive constructive feedback from the educator.</td>
<td>The learners had chance to try/practice their new knowledge within the course and received constructive feedback from the educator.</td>
<td>The learners had chance to try/practice their new knowledge within the course and received constructive feedback from the educator according to the performance standards that were set together with the learners.</td>
</tr>
<tr>
<td><strong>2.3.3. Self-Assessment</strong></td>
<td>The learners didn't have any chance to make self-assessment.</td>
<td>The learners had chance to make self-assessment but not according to the performance standards.</td>
<td>The learners had chance to make self-assessment according to the performance standards.</td>
<td>The learners had chance to make self-assessment according to the performance standards and they had space to set new goals based on the assessment with the support of the educator.</td>
</tr>
<tr>
<td>2.4. Coach</td>
<td>Unacceptable</td>
<td>Unsatisfactory</td>
<td>Needs Improvement</td>
<td>Satisfactory</td>
</tr>
<tr>
<td>------------</td>
<td>--------------</td>
<td>----------------</td>
<td>------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>2.4.1. Coaching</td>
<td>There was no coaching support for the learners.</td>
<td>The learners received coaching support partly, but the coaching was not completely planned.</td>
<td>The learners received planned and timely coaching support.</td>
<td>The learners received planned and timely coaching support which was structured according to experiential learning cycle.</td>
</tr>
<tr>
<td>2.4.2. Learning Plan</td>
<td>The learners didn't make any learning plan.</td>
<td>The learners determined what they need to learn more at the end of the course, but they didn't create individual learning plans which have concrete and timely actions.</td>
<td>The learners determined what they need to learn more at the end of the course, and they created individual learning plans which have concrete and timely actions.</td>
<td>The learners determined what they need to learn more at the end of the course, and they created individual learning plans which have concrete and timely actions. This plan included a future meeting with the educator to evaluate the progress.</td>
</tr>
<tr>
<td>2.4.3. Practice in Real Life</td>
<td>There was no practice of new knowledge in real life context.</td>
<td>The learners had chance to practice their new knowledge in real life context but there was no evaluation afterwards.</td>
<td>The learners had chance to practice their new knowledge in real life context and these new experiences were reflected and evaluated by the learners and the educator.</td>
<td>The learners had chance to practice their new knowledge in real life context, these new experiences were reflected and evaluated by the learners and the educator and the learners set new goals and action plans based on the evaluation results.</td>
</tr>
</tbody>
</table>
Appendix II- DeM-LAND Interactive Online Education Platform Based on Experiential Learning Theory
The Self-Assessment of Lecturers Teaching Turkish as a Foreign Language Regarding Distance Education in the Covid-19 Pandemic Era

Mete Yusuf Ustabulut¹
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Abstract

The aim of this study is to examine the instructors' self-assessment about teaching Turkish in distance education. Phenomenology method was used in the current study. The sample of the study is comprised of 26 faculty members from different regions in Turkey. The data collection tool of the research is a self-assessment form consisting of five questions. Content analysis and descriptive analysis were utilized in the data analysis. As a result of the study, it was found that the lecturers achieved the goals of the course and the lesson plans were sufficient in distance education. It has been determined that the lecturers prepare more activities and lesson materials in order to reach the goals of the course. Few of the lecturers gave homework to the students. On the other hand, it has been understood that most of the lecturers are ready for distance education. However, it is possible to talk about the existence of academic staff who need in-service training. In the research, the necessity of digitalization especially in the course materials has been revealed. In addition, it reflected the lecturers' self-evaluation processes regarding distance education in the research.

Keywords: COVID-19 Pandemic, Turkish Education, Self-Assessment, Distance Education.


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INTRODUCTION

Self-assessment is making a certain judgment about one's own situation. Klenowski (1995, p.145) describes self-assessment as evaluating and thinking about one's own situation on any subject and identifying both strengths and weaknesses in order to increase learning outcomes.

Self-assessment refers to making evaluations about one's learning (Boud & Falchikov, 1989, p.529). In these assessments, the person should approach their work with an honest and critical thinking. While reaching these judgments in self-evaluation, the person making the self-assessment can ask himself the following questions; “How do I compare the work of my classmates with mine?”, “What should I do to improve my quality?” (Fallows & Chandramohan, 2001, p. 3). These questions are effective in reaching a conclusion about the performance of the evaluator.

There are some measurement tools that can be used when self-assessment is performed. These are; Likert scales, skill listings, written tests for development files, audio cassette assessments and interactive systems (Cihanoğlu, 2008, s.34 akt. Pamukçu, 2015).

Self-assessment has many benefits. Dickinson (1987) mentioned these benefits. These are also important elements of student autonomy. Self-assessment allows the teacher to devote more time to helping the student in other parts of the learning process. For instructors, Self-assessments allow us to more accurately identify areas where students need to improve and progress. Overall, in the context of contemporary global interest in teacher evaluation, teachers’ self-evaluation is a valid approach, formally valued (Borg & Edmett, 2019). Moreover, the importance of learner autonomy has further increased interest in self-evaluation (Bhatti & Nimechisalem, 2020). This importance of self-evaluation has made it an essential part of current international education reforms (Yan et al., 2020). Moreover, according to Ratminingsih, et al (2018), “one type of authentic assessment which can be used to assess language competence is self-assessment”. Oscarsson (1989) also cited six reasons why self-assessment can be useful in language learning. These include encouraging learning, raising awareness, increasing the tendency to aim, expanding the validity of the assessment, dividing the burden of the assessment, and being useful after the course.

One of the points that support the argument of those who want to use the self-assessment method is the idea that it supports the autonomy of learners who can take more responsibility in planning, implementing, monitoring and interpreting their own learning (Mistar, 2011). In addition, it is stated that using different measurement and evaluation strategies in the classroom increases the motivation for success, provides more thinking skills, and ultimately improves academic performance, as well as measuring various characteristics of students (Bahar, Nartgün, Durmuş & Bıçak, 2006).

Distance education is a teaching activity that takes place when the teacher and the learner are far from each other (Schlosser & Anderson, 1994). We name distance education that students can continue their learning activities anytime and anywhere (Wedemeyer, 1975). Compared to formal education, the teaching and learning space in distance education is separate from each other and technology is used instead of face-to-face communication (Johnson, 2003; Moore, 1987). Although it may seem like a disadvantage at first glance that the teacher and the learner are in different places from each other, this situation enables them to use time and place more comfortably and flexibly. Flexibility of time and place provides equality of opportunity for everyone who aims to learn (Bunker, 2003).

On the other hand, distance education applications are rapidly becoming widespread, especially after developments in Information Communication Technologies. The main reason for the rapid spread of distance education is COVID-19. The following features of distance education have come to the fore in the studies on distance education (Altun, 2020);

- Being tidy and systematic
• Focusing on student
• Providing equal opportunities
• Being able to use time and place more comfortably and flexibly

These are the advantages of distance education. Looking at other research conducted with distance education, the points that are considered as a disadvantage of distance education are as follows;

• It is not suitable for individuals if self-regulation is lacking.
• It is necessary to know the technological developments well, it requires good technological knowledge.
• Its cost is high.
• Material and design are limited.
• It is difficult to get feedback (Altun 2020)

In this context, the main problem and sub-problems of the research were formed as follows:

Main Problem Statement: What are the lecturers’ self-assessments about teaching Turkish in distance education?

Sub-problems:

1) What are the self-assessments of the teachers regarding the attainability of the goals of the Turkish course in distance education?

2) What are the lecturers’ self-assessments regarding the Turkish lesson plan in distance education?

3) What are the self-assessments of the instructors regarding the teaching process they carry out in achieving the goals of the Turkish course in distance education?

4) What are the lecturers’ self-assessments regarding the content and goal consistency of the Turkish course in distance education?

5) What are the lecturers’ self-assessments about the rearrangement of Turkish course content in distance education?

RESEARCH DESIGN

Research Method

The Descriptive Phenomenology method is the method chosen to answer research questions. “Husserlian descriptive phenomenology as a research method is widely used in the social sciences, one in which it aims to explore and describe the lived experience” (Christensen et al., 2017). Indeed, researchers use the method of phenomenology when they aim to study the experiences of individuals. In this context, the phenomenology method was used in the study because the research questions were directed to the experiences of the individuals (Johnson & Christensen, 2014, p.383; Ersoy, 2016, p.55).
Study Group of the Research

There are some important criteria in determining the study group in qualitative research designs. In the present study, the aim of the researcher is to reveal the Turkish teaching experiences of the lecturers in the distance education process. However, the formation of the study group in this study is on a voluntary basis. Thus, 26 academics from different regions of Turkey have been reached. The names of the lecturers participating in the study are not dislo…

Data Collection

In the study, a self-assessment form (5 questions) was used to determine whether the lecturers understand distance education practices or not. The form in question was developed by the researcher in view of the relevant literature. The validity of the data collection tool was confirmed by two academicians who are experts in their field. The reliability of the data collection tool was verified by 4 educators. The analysis form was collected from lecturers online on a voluntary basis. The questions in the self-assessment form are as follows:

1) Did I reach the goals of the lesson in the distance education process?
2) Was the plan I prepared in the distance education process sufficient?
3) What have I done in relation to the goals in the distance education process? What should I have done?
4) Was the content I prepared in the distance education process consistent with the goals? Why?
5) If I were to rearrange the content in the distance education process, what would I do?

Data Analysis

Two different data analysis techniques were used in the analysis of the research data. The first of these is content analysis. Content analysis is mostly preferred by historians and men of letters especially in qualitative research designs (Merriam, 2013, p.144). In addition, the answers given to the self-assessment form of the academic staff participating in the study constitute the data of the study (Yıldırım & Şimşek, 2013, p. 259). Categories and codes were used due to the nature of the content analysis. Descriptive analysis was used as a qualitative analysis together with content analysis to increase the validity and reliability of the study. On the other hand, the validity and reliability of the content analysis were determined by expert opinions and inter-coders. The harmony between coders is 82% (Bilgin, 2014: 12 (Miles & Huberman, 2015, p.64; Muijs, 2004, p.73). From this point of view, it can be thought that sufficient reliability is provided in data analysis.

FINDINGS

Below, the findings of the lecturers regarding the goals of the course are given as frequency (f) and percentage (%). The self-assessment of the lecturers regarding the achievement of the course objectives are presented in Table 1.
Table 1. Self-assessments of the course objectives

<table>
<thead>
<tr>
<th>Categories</th>
<th>Frequency (f)</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I achieved the goals of the lesson</td>
<td>23</td>
<td>88.46</td>
</tr>
<tr>
<td>I did not reach the goals of the lesson</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>I relatively reached or did not reach the goals of the course</td>
<td>3</td>
<td>11.54</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>100</td>
</tr>
</tbody>
</table>

When Table 1 is examined, it is seen that 88.46% of the lecturers (f = 23) have reached the goals of the course and 11.54% (f = 3) stated that they relatively reached or did not reach the goals of the course. In addition, sample sentences from the self-assessments of the instructors regarding the goals of the course in distance education are presented below.

LECT5: “I reached my goal with the students who followed the lesson seriously. I partially or never reached my goals with the others."  
LECT12: “My goals in distance education are to use the subject covered in accordance with the new technology, to use applications to support and reinforce knowledge, and I think I can achieve my goals."

Self-assessments of the lesson plan of the teachers are given as frequency (f) and percentage (%).

Table 2. Self-assessments of the lesson plan

<table>
<thead>
<tr>
<th>Categories</th>
<th>Frequency (f)</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>My lesson plan was sufficient</td>
<td>22</td>
<td>84.62</td>
</tr>
<tr>
<td>My lesson plan wasn't sufficient</td>
<td>4</td>
<td>15.38</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>100</td>
</tr>
</tbody>
</table>

When Table 2 was examined, 84.62% (f = 22) of the lecturers stated that the lesson plans were sufficient and 15.38% (f = 4) stated that the lesson plan was not sufficient. Sample sentences from the self-assessments of the lecturers regarding the syllabus in distance education are presented below.

LECT8: “The plan I prepared was sufficient. Because when I implement what I planned, all the students understood the subject I was covering."  
LECT13: "It was not sufficient. Because I am not used to the distance education system, the plan was shaped and changed throughout the process."  

Lecturers’ self-assessments of the goals are given as frequency (f) and percentage (%).

Table 3. Self-assessments of the teaching process carried out in achieving the goals

<table>
<thead>
<tr>
<th>Categories</th>
<th>Frequency (f)</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I prepared activity and lesson material</td>
<td>22</td>
<td>84.62</td>
</tr>
<tr>
<td>I gave homework</td>
<td>4</td>
<td>15.38</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>100</td>
</tr>
</tbody>
</table>

When Table 3 is examined, 84.62% (f = 22) of the lecturers stated that they prepared activities and course materials in order to reach their goals. In addition, 15.38% (f = 4) of the lecturers stated that they gave homework in classes in order to reach their goals. Sample sentences from the self-assessments of the lecturers regarding the syllabus in distance education are presented below.

LECT5: “I used the internet, youtube, news websites, computer games. I should have prepared more interactive lessons."
LECT6: “I prepared materials with Web 2.0 tools and different computer programs.”

LECT13: “I learned the use of Web 2.0 tools to keep students active and improve their language skills, I completely changed my materials and my lesson plan.”

The self-assessments of the lecturers regarding the consistency of content and goals are given as frequency (f) and percentage (%).

Table 4. Self-assessments of consistency of content and goals

<table>
<thead>
<tr>
<th>Categories</th>
<th>Frequency (f)</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consistent</td>
<td>26</td>
<td>100,00</td>
</tr>
<tr>
<td>Not consistent</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>100</td>
</tr>
</tbody>
</table>

When Table 4 was examined, 100,0% (f = 26) of the lecturers stated that their content and goals were consistent. Sample sentences from the self-assessments of the lecturers regarding the consistency of content and goals are presented below.

LECT4: “Yes, it was consistent because the Turkish levels of my students were what I aimed at the end of the course.”

LECT11: "Yes. Because I took care that the content I prepared was suitable for my goals.

LECT15: “Yes, I was able to get the desired level of feedback. For this reason, I could see that I prepared consistent content.”

The instructors’ self-assessment about the reorganization of the content are given as frequency (f) and percentage (%).

Table 5. Self-evaluations of the reorganization of content

<table>
<thead>
<tr>
<th>Categories</th>
<th>Frequency (f)</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I would prepare more visual content</td>
<td>12</td>
<td>46,15</td>
</tr>
<tr>
<td>I would produce different and comprehensive material</td>
<td>9</td>
<td>34,62</td>
</tr>
<tr>
<td>I would produce content that is interactive and for all levels</td>
<td>5</td>
<td>19,23</td>
</tr>
<tr>
<td>Total</td>
<td>26</td>
<td>100</td>
</tr>
</tbody>
</table>

When Table 5 is examined, lecturers made a self-assessment as follows: 46,15% (f = 12) of the lecturers "I would prepare more visual content", 34,62% (f = 9) of them "I would produce different and comprehensive materials" and at last 19,23% of the them "I would produce content that is interactive and for all levels". Sample sentences from the self-evaluations of the lecturers on the reorganization of the content are presented below.

LECT6: “Maybe I could make more visual designs or videos.”

LECT4: "I think every course I teach is beneficial for the students, but I also think that I can prepare different materials for some of the topics I have covered in the course.”

LECT5: “I would put in more games and activities where the student could be active.”

CONCLUSION AND DISCUSSION

In the study, the majority of the lecturers stated that they achieved the goals of the course in their self-assessment of distance education. In another study on distance education, only some of the Science teachers stated that the curriculum in distance education could be completed. This difference
is due to the opinions of teachers who think that the laboratory applications and workshops courses in Science cannot be completed with distance education (Bakioğlu & Çevik, 2020; Markova, 2021). It can be said that the distance education process has mostly created problems in lessons with practice. After the Covid 19 pandemic, complementary courses and in-service trainings should be considered for lessons with practice.

However, most of the lecturers stated that the lesson plans were sufficient. Again, most of the academics participating in the research stated that they prepared activities and course materials in order to achieve their goals. This result can be explained by the increase in e-learning activities of the COVID-19 process (Mulenga & Marban, 2020). Less of the lecturers stated that they gave homework in classes in order to reach their goals. The researches stated that most of the lecturers are ready for the distance education process. However, it is not possible to underestimate the proportion of educators who are not ready for distance education. In this context, in-service training courses regarding the execution of distance education process operations (use of technology, preparing teaching materials, etc.) are recommended (Durak, Çankaya & İzmirli, 2020; Karadağ, & Yücel, 2020; Goh & Sandars, 2020). In this way, those who are ready for this process are provided with more professionalization and the processes of preparing those who are not ready at all are completed. When it comes to giving homework, it should be taken into account that in distance education, students have difficulties in focusing on homework (Serçemeli, & Kurnaz, 2020). In this context, homeworks should be easier to focus. In addition, educators should consider socio-economic and availability of technology status of students (Žižanović, Pranjić & Radovanović, 2021). In other words, educators should consider the opportunities students have in distance education applications.

In addition, all of the lecturers stated that their content and goals were consistent. However, considering the self-assessments of the lecturers regarding the re-arrangement of the content, it is seen that there are three different self-assessments. These have already been listed as “preparing more visual content”, “producing different and extensive material”, and “producing content that is interactive and for all levels”. In fact, this result shows that lecturers are caught unprepared in distance education teaching and digitalizing course contents. However, it is possible to see similar results in other studies on the subject. The Covid-19 process, contrary to popular belief, has shown that universities in the world and in Turkey are not digitalizing enough (Karadağ & Yücel, 2020; Syahria, 2021). However, the globalizing world has experienced such a pandemic for the first time. Therefore, it can be understood that distance education practices are caught unprepared for this process. These experiences will constitute an important memory of the education history.

In the same study, students stated that they were dissatisfied with digital content/teaching materials. In this context, it can be considered that the criticism of the lecturers participating in the research towards the teaching materials and their content is also theoretically meaningful. At the same time, it is obvious that not only educators but also most of the students are caught unprepared for the digitalization process (Karakuş, Ucuzsatar, Karacaoğlu, Esendemir, & Bayraktar, 2020).

As a result of the research, the lecturers reflected the stages mentioned in the litterateur on self-assessment in the current research. These stages are being aware of their own distance education processes, looking critically at the teaching processes and expressing these processes (Şahin & Abali Öztürk, 2012; Kösterelioğlu & Çelen, 2016). Therefore, self-assessment applications are an important tool to reveal the shortcomings of distance education.

REFERENCE


Teachers' Commitment to the Curriculum and Relevant Parent Opinions: A Case Study on Turkey

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Abstract

The study examines teachers’ commitment to the curriculum applied in the classroom and relevant parent opinions. The qualitative case study design was used in the research. The research sample comprises four preschool teachers selected by the contingency sampling and eight parents selected by the criterion sampling. The data were collected through interview and document analysis techniques and analyzed with content analysis. It was found that the devotion of teachers working in private schools to the curriculum is higher than public school teachers. The teachers applied program adaptations within the scope of rearrangement, expansion and omitting patterns. As the adaptation factors are classified under 5 categories as "the influence of school administration, professional experience, the student readiness factors, parent expectation, and teacher interest in the subject. It has been determined that the public school students’ parents have more positive opinions about the program followed in the classroom compared to the private school students’ parents.

Keywords: Commitment to Curriculum, Curriculum Adaptation, Adaptation Patterns

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INTRODUCTION

Due to the centralized structure of the education system in Turkey, all educational institutions apply the curriculum (official programs) developed by the Ministry of National Education (MNE). Contemporary scholarship revealed that some teachers do not follow official programs and there are significant differences between official programs and the applied programs in classrooms (Bümen & Yazıcılar, 2020; Bütün & Gültepe, 2016; Öztürk, 2012; Tokgöz, 2013; Yazıcılar, 2016). The reason behind this difference is that teachers adapt the curriculum for various reasons.

Adapting the curriculum; is defined as “important changes made by teachers on the curriculum such as changing the structure, purpose and activities of the lesson” (Sherin & Drake, 2009), and “executors’ use of their design elements also, in their curriculum” (Brown & Edelson, 2003, p.7). The studies on adapting curricula, it is observed that adaptation patterns differ, and adaptations made for the same purpose are designated with different patterns. Janney and Snell (2004) detailed adaptation patterns such as supplementary (adding new goals to the lesson), simplified (reducing the difficulty level of the lesson) and alternative (rearranging the activity to be applied in the lesson). Moreover, Sherin and Drake (2009) described adaptation patterns as omitting (neglecting a planned part of the lesson without replacing it), replacing (changing the order of the subject or the way the activities are applied) and create (creating new materials in the transition between activities, between schoolwork and homework). Davis, Beyer, Forbes and Stevens (2011) also categorized these patterns as change (changing the application style of the subject to be taught, some parts of the activities in the lesson plan, teaching methods and techniques, subjects and the order of teaching the subjects, the worksheet), add (adding new activities based on research and practice, informative texts, topics, worksheets, providing additional support), remove (removing the activity, topics, teaching methods and techniques, worksheets used in the lesson plan, providing less support to the student than those suggested in the course plan). Furthermore, Meidl and Meidl (2011) divided the patterns such as reteaching (detailing the subject with more explanations), going deeper (making the activities difficult according to the student’s level of knowledge). Li and Harfitt (2017) named patterns in their study as adjusting (applying the total time specified in the curriculum for the teaching of content, but teaching the same content at different times), replacing and revising (replacing the teaching content that is classified as inappropriate with more useful and interesting materials, making changes on the exercises in the textbook), supplementing and omitting (adding original materials to facilitate teaching and learning, removing parts of student books that are accepted as impractical or unscathed) and inventing (designing the teaching activities and learning tasks). On the other hand, Troyer (2017) classified patterns in his study as add (creating activities that are not included in the lesson plans, adding follow-up questions not included in the official program), change (changing the aim of the teaching material), remove (not processing some pages of the workbook in the official program).

Regardless of its classification, adaptation’s primary purpose is to provide the conditions in which all students can learn, receive proper education and satisfaction (González, 2004).

To make effective changes in the curriculum, a teacher needs to use the design elements and materials through "pedagogical design capacity" (Brown, 2009). It is worth examining how and why teachers adapt official programs in line with their pedagogical design capacities. Because while some teachers make adaptations to support and develop programs, others decapacitathes programs through inefficient adaptations (Brown & Campione, 1996; Collopy, 2003; Remillard, 1999). The research question is what level of commitment teachers should have to the curriculum. The issue of adapting the curriculum is also related to the commitment to the program.

Commitment to the curriculum is defined as “determining the compatibility between the designed program and the implemented program” (Furtak et al., 2008, p.362), “the determination of how well programs are implemented compared to the original program design” (Mihalic, 2004, p.83). The domestic literature trumps two different teacher profiles in terms of adherence to the curriculum as ones who apply the curriculum as designed (Özdemir, 2012; Şahin & Kumral, 2013) and others
change the official programs due to not adopting the basic philosophy of program (Çiftçi, Akgün & Deniz, 2013; Kuduban & Aktekin, 2013), thinking that they are not competent to fully implement the programs (Atila, 2012), not able to establish a relationship between the attainments and activities (Saraç & Yıldırım, 2019), and to cover some important issues in the content due to inadequacy of physical conditions (Aktaş & Erdoğan, 2012), replacing some activities in the program due to lack of materials (Alabaş & Kamer, 2007), shaping the course outcomes according to the national exam contents (Alabaş & Kamer, 2007; Menteşe, 2013) and student success (Seçkin, 2011).

Which of these two different teacher attitudes the MNE approves is important in terms of the implementation of the programs following their objectives. The Ministry stated that the principle of flexibility was adopted in the curriculum, and it was expected that the necessary adaptations are made by teachers in reaching the program outcomes (MNE, 2018). Teachers have the initiative to adapt official programs to local needs, and teachers are empowered to take responsibility in Turkey. It is considered that studies on determining the teacher commitment with participants who apply the same curriculum but work in different schools at the same level of education and determining why and how they adapt the curriculum will contribute to curriculum development and teacher training literatures. Moreover, the purpose of the research is; examining teacher commitment to the curriculum in schools which has differences in aspects of a student-parent profile, purpose, educational material institutional features, and parent opinions about the curriculum applied in the classroom. As a participant of the curriculum, parent view about the program implemented in the classroom, shall provide important clues in determining the factors affecting teacher commitment to the official program. The study endeavors answers to the following sub-problems:

1. What is the level of teacher commitment to the curriculum?
2. What are the curriculum adaptation patterns of teachers?
3. What are the factors affecting teacher commitment to the program?
4. What are the parent opinions about the curriculum applied in the classroom?

**METHODOLOGY AND METHODS**

**Research Design**

The case study design was preferred in the study. Preschool Education Program (official program) for 60-72 Months Children has been accepted as the case. In official programs prepared for all education levels, although it is not clearly stated which element of the curriculum teachers can stick to and adapt to, it is clearly stated that all elements of the curriculum can be adapted in the preschool curriculum (MNE, 2013, p.14). Therefore, the pre-school curriculum is considered as the case in the study.

**Research Sample**

The sample comprises 4 preschool teachers selected through contingency sampling and 8 parents selected with criterion sampling. Two of the teachers work in public and two in a private school. While the professional experience of public school teachers are 9 and 15, the private school teachers have professional experience of 9 and 5. Besides, one of the public school teachers has a Ph.D in preschool education. Both public school teachers have one fusing student in their class. The average parental education level of private school teachers is undergraduate, and public school teacher average is high school. Moreover, a homogeneous classroom practice was conducted in the private school, while students were subjected to pre-evaluations monitoring their development progress before being accommodated to different classrooms. The public school students are registered to schools based on an address system. While public school teachers prepare their lesson plans, private school
teachers apply the lesson plans prepared in advance by the school head quarters usually in a different city.

The criteria of having information about the preschool curriculum and voluntary participation in school activities were taken into account in the selection of the parents. Moreover, the suggestions of the teachers and the school administration were considered, and a total of 17 parents who were shortlisted for the study were reached. The study purpose was explained, and a semi-structured interview form prepared by the author was applied to them. It was observed whether the parents had information about the preschool education program. Eight parents who fulfill the criteria listed above and wanted to participate in the research voluntarily were determined. Four of the parents are from the private school, and four of the teachers’ working in the public school. Four parents have a Ph.D. and six are education faculty graduates. All participants stated that they have examined the preschool curriculum and they have positive opinions about the program elements and features except for the attainment item.

**Data Collection Tools**

The data were collected through interview and document analysis during the fall semester of the 2019-2020 academic year, in October and December. Interviews were used to determine the teacher commitment level to the curriculum, program adaptation patterns and the opinions of the parents about the curriculum applied in the classroom. As the document analysis was utilized to determine the factors behind their commitment to the curriculum. Data collection started with the analysis of monthly plans. Before each academic day, teachers were contacted (telephone calls, e-mail communication, face-to-face communication), daily lesson plans were requested, information about the structure and functioning of the lesson, and parental participation in the class was obtained. The commitment level to the daily lesson plans to the monthly plan, and the official schedule was examined by the author. At the end of the daily lesson process, teachers were contacted again, their plans were requested, and information was obtained about their commitment to the plans. The author analyzed whether the adaptations (if any) were reflected in the daily plans, why they needed the adaptation, for which element(s), whether a resource was used as a guide in the adaptation process, and the parent participation in the learning process in the classroom was also examined. Interviews were completed in an average of 20 minutes. The semi-structured interview form prepared by the author was used for the interviews. There were ten questions in the form prepared in line with the sub-problems. The questions were presented to an expert in program development and their suitability for the purpose was evaluated. Moreover, the clarity and comprehensibility of the questions were examined by two preschool teachers who were not included in the research.

Furthermore, parent interviews were performed under the teacher guidance, and pre-and post-lesson interviews were held in the classroom with parents. The data were collected about why and how the parents would participate in the learning process before the lesson with the interview form prepared, and the definition of this participation in the official program was examined. Parent opinions on whether the in-class participation attracted the attention of the learners, it created an awareness among the learners, and the activity should be repeated were obtained after the lessons. Interviews were completed in an average of 15 minutes.

**Data Analysis**

First, the coding sheet was created in line with the adaptation patterns in the literature. The findings were arranged according to this coding sheet, and the adaptations made for similar purposes to the adaptations in other studies were presented under the same pattern. Adaptations opposing the literature were patterned by the author. Moreover, the coding for adaptation patterns were designed in this study, and the purpose of the pattern was detailed with it. Patterns are designed as “categories” in
the content analysis, and the scope of the categories is explained by including the codes under the categories. The purpose of adopting such an approach in the analysis is that more than one adaptation can be made for different purposes within a pattern. The interviews with parents were analyzed using the content analyses as they were deciphered, and then categories and codes were created.

The document analysis was applied to the monthly and daily plans that teachers follow in their lessons, their commitment to the official program and each other was examined in terms of the attainments and their priority, the subjects and their order and duration, subject and method of adaptations made in this process, was examined, and presented with the findings. Assessment-evaluation element of the official program and teachers' commitment to the teaching-learning process and program adaptations were excluded from the study. The reason behind this is that the preschool curriculum does not include application examples for these elements, and the practices for these elements in the program are under teacher's responsibility.

Validity and Reliability

The data diversification method (Yıldırım&Şimşek, 2013) was selected to ensure the internal validity of the study, the consistency and significance of the data collected from different data collection tools were evaluated. The inductive coding and theme creation process was followed in determining deductive and new concepts in the light of the relevant field literature to create a meaningful whole of the emerging concepts. Internal validity was increased by detailing the compatibility of the obtained findings with the previously formed conceptual framework in the data analysis section.

The external validity of the study was ensured through the principle of maximum diversity in the selection of participants, so that the results were applicable for different purposes in different fields. Since the study aims to reveal the difference between the official program and the applied program, teachers who have very different characteristics in terms of workplace, parent profile, lesson plans taken as guides were included in the research sample.

The reliability of the coding sheet was examined first. The transcripts of the interviews with the teachers were examined by the author and a curriculum development specialist working on preschool curriculum together. During the examination process, the expert marked the answers given by the participants to the questions regarding the adaptation patterns in the interview transcripts matching the the relevant adaptation pattern in the coding sheet. Moreover, the marked adaptation patterns were compared, and the coding sheet was finalized. The codes regarding the adaptation patterns were presented to the opinion of two different field experts, and they were finalized through the feedbacks and modifying the coding sheet. The expert opinion was consulted for the reliability of the data generated by the content analysis. The data analysis performed separately by the author and the expert (whose opinion was consulted in the process of the reliability of the coding sheet), the data with a consensus upon it were included in the findings. Differing opinions were discussed over the results. A common decision was reached through the document analysis results and the conceptual framework created before the data analysis when necessary, and the findings were finalized. Findings were supported with direct quotations from teacher and parents. Direct quotations from the information given in the interviews by the public school teachers are connotated with the "PBS" and the private school teachers with the "PRS".

RESULTS

Results for the first sub-problem

The interviews revealed that public school teachers follow the official program at a moderate level and private school teachers at a high level. PBS1 said, “... No, I cannot adhere to the program 100%. But frankly, I'm not changing too much. I have to make some changes...” and stated that he/she
adapted on the program. PBS2 said, “...partially, I can say moderate commitment. Because even though I take care to plan according to the curriculum, I sometimes make changes.” and stated that he/she adheres to the program at a moderate level. PRS1 said, “…I adhere to the plans from the headquarters...these plans are prepared according to the MNE program…. I strictly adhere to the plans coming from the headquarters and the MNE program.” PRS2 said, “…we follow the curriculum. It is a hard task, we follow both the curriculum and the plans from the headquarters exactly...” and expressed his/her high level of commitment to the official program.

The document analysis was applied to the monthly plans prepared by the public school teachers are mostly consistent with the official program and the daily plans with the monthly plans. Teachers did not include field trips specified in the official program in their plans. Although the teachers clearly stated that they had a moderate level of commitment to the official program during the interview process, it was found that they did not reflect the adaptations they made in the lesson plans. In other words, teachers exhibit a high level of commitment to the program informality and a moderate level of commitment in practice. The plans implemented by the teachers in the private school showed that the plans showed a high level of consistency with the official program. These data show that private school teachers are highly committed to the curriculum in formality and in practice.

Results for the second sub-problem

Table 1 presents information about the adaptation patterns and codes regarding teachers.

Table 1: Patterns and codes of the teachers

<table>
<thead>
<tr>
<th>School type</th>
<th>Adaptation pattern</th>
<th>Code</th>
<th>Purpose of the code and examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public school</td>
<td>Rearrangement</td>
<td>Time adjustment</td>
<td>(PBS1) Extending the time allocated for the subject (Extension of the time allocated to “Respect for Differences”)</td>
</tr>
<tr>
<td></td>
<td>Rearrangement</td>
<td>Changing the activity</td>
<td>(PBS1&amp;PBS2) Replace the current activity with a new one (Instead of a nature trip, inviting a parent with a biology education to the class)</td>
</tr>
<tr>
<td></td>
<td>Expansion</td>
<td>Designing activities</td>
<td>(PBS1) Designing an original activity suitable for the subject of the lesson (Teaching some words in sign language about “Respect for Differences”)</td>
</tr>
<tr>
<td></td>
<td>Expansion</td>
<td>Adding attainment</td>
<td>(PBS2) Performing foreign language teaching (Teaching the English equivalents of colours and numbers)</td>
</tr>
<tr>
<td></td>
<td>Expansion</td>
<td>Adding subject</td>
<td>(PBS2) Adding the subjects to be learned in the next education level to the content of the course (Expanding the number counting teaching from 1 to 30)</td>
</tr>
<tr>
<td></td>
<td>Expansion</td>
<td>Reteaching</td>
<td>(PBS2) Repeating the subjects that are not learned enough (Reteaching the concept of right-left with different activities)</td>
</tr>
<tr>
<td></td>
<td>Omitting</td>
<td>Omitting attainment</td>
<td>(PBS2) Omitting pre-planned attainments (Omitting the attainments about backward rhythmic counting, omitting the attainments of explaining the meanings of words for students who do not speak Turkish)</td>
</tr>
<tr>
<td>Private school</td>
<td>Rearrangement</td>
<td>Changing the activity</td>
<td>(PRS1&amp;PRS2) Changing the activity Replacing the current activity with a new one (Instead of organizing a trip to the pharmacy, inviting a doctor to the class)</td>
</tr>
<tr>
<td></td>
<td>Expansion</td>
<td>Reteaching</td>
<td>(PRS1) Repeating the subjects that are not learned enough (Reteaching the subject of opposite concepts with different activities)</td>
</tr>
<tr>
<td></td>
<td>Omitting</td>
<td>Omitting activity</td>
<td>(PRS1&amp;PRS2) Omitting the family participation activity without replacing it (cancelling the parent invitation for the end of the year exhibition)</td>
</tr>
</tbody>
</table>

Table 1 shows that teachers’ adaptation patterns are rearrangement, expansion and omitting. The public school teachers’ have higher and more qualified program adaptations than private school teachers. Findings regarding adaptation patterns and codes are presented in the following section.
Rearrangement

There are two codes within this theme as time adjustment and changing the activity. The interviews with PBS1, one of the public school teachers, revealed that the teacher spends more time on the subject than planned due to his special interest in “Respect for Differences”, and the adaptation made in this direction is presented under the “time adjustment” code. The teacher's opinion is as follows, “...this topic is also my PhD thesis. It is a subject that I am very interested in, so I devoted more time to this subject than I planned...” (PBS1).

All teachers made similar adaptations in changing the activity. It was determined that public school teachers did not include activities related to the field trips, which exist in the official curriculum, their lesson plans, and private school teachers did not implement this activity although they were included in the lesson plans. The rearrangement pattern includes the code of changing the activity as the teachers changed the field trip activities in the official program to achieve the attainment with classroom activities. Teacher views are as follows; “...organizing a trip is hard work. Parents are causing a lot of trouble. Instead, it is easier to bring the expert to the classroom...” (PBS1); “...yes, the program includes trips but...organizing trips is very difficult and takes time, getting permission from the principal, getting permission from the governor's office, most importantly, the parents...I don't want to have this burden...” (PBS2), “... It was written in the plans that we had to organize a trip to the pharmacy, but at the meeting we held, the school principal decided that we could not do this practice due to reasons such as the negative attitude of the families...We combined both classes, asked aparent, he/she came to school, and informed the children...” (PRS2).

Expansion

This pattern comprises codes for designing activities, adding attainments and subjects, and reteaching. The interviews with PBS1 showed that the teacher designed original activities on the subject of “Respect for Differences” and implemented these activities. “...The activities in the market regarding this issue are insufficient, there is a need for more striking and more appropriate activities. That's why I designed and implemented an activity myself...” and explained his/her opinion. This adaptation is presented in Table 1 with the code “designing activity”.

The interview with PBS2 revealed that he/she included the attainments and subjects not in the official program in the teaching-learning process, taking into account the parent requests and the student readiness level. The teacher stated that the attainments regarding foreign language learning are not included in the official curriculum but the parents asked him/her to support the children in this regard since there are courses for foreign language teaching in private schools. Moreover, the teacher stated that he/she expanded the content of a subject in the official program by adding teaching subjects in the next education level, considering the parent expectations and the students’ current performances. These adaptations were coded as “adding attainment” and “adding subject”. The teacher’s opinion is as follows, “...I also taught English numbers and colours. Officially, there is no such attainment in the program, but parents demand it, the cognitive development of the students is good. I added these informal attainments to my lessons...I also taught unofficial subjects. I had my students rhythmic counting from 1 to 30, not to 20.”

The interviews with public school teacher PBS2 and private school teacher PRS1 indicated that they repeat the subjects they thought the students could not learn enough with different activities at different times. PBS2: “...today I have observed that right and left concepts are confused. Actually, I had no plan to go back to that topic today, but I had to rework the subject with a few activities...” PRS1: “The topic of contrasting concepts was not included in the current plan, but I noticed the students could not understand the subject, I quickly performed an activity, and I reviewed that subject.” This adaptation made by teachers in the teaching-learning process is presented under the code of “reteaching” in Table 1.
Omitting

There are two codes in this pattern as omitting attainment and omitting activity. One of the public school teachers, PBS2, adapted the omitting attainment, and the private school teachers made the omitting activity adaptation. PRS2 stated that he/she neglected some of the attainments in the official program because the student readiness level was adequate. Private school teachers stated that they neglected the activities based on family participation in the official curriculum and lesson plans because discipline problems might be experienced in the classroom. The views of the teachers are as follows, “...the student cannot count forward rhythmically, so it is not possible for him/her to count backwards rhythmically either. That's why I passed that attainment....I have students who do not speak Turkish. I have to omit the attainment of explaining the meanings of the words that I think are above the language development level of these students...”(PBS2), “There was an activity that requires family participation, we made a joint decision with the other teachers and the principal, and then we cancelled this activity, adverse behaviours might occur since the classes are crowded” (PRS2).

The document analysis suggested that public school teachers applied changing the activity under the rearrangement pattern in their lesson plans. The remaining adaptations were determined in the teacher interviews. Although private school teachers made the adaptations specified in Table 1, they did not reflect any of these adaptations in the plans sent to them. This shows that private school teachers are not highly committed to official programs in practice, as they stated in the first sub-problem.

Analysis of the data collected for the third sub-problem

Teacher views on the factors behind their commitment to the curriculum was collected under 5 categories as the influence of school administration, professional experience, the student readiness factors, parent expectation, and teacher interest in the subject.

Under the influence of school administration category, private school teachers stated that the school administration is an element of pressure on adherence to the official program and that they cannot make the adaptations they want in the programs. PRS2 said, “...We have 4 branches in this school...I cannot do anything different from them....Actually, I am very complaining about this situation. I see some glitches, but I can't do anything. For example, I want to omit some attainments, but I give up when the principal calls me to account...” and stated his/her opinion.

Public school teachers stated that the in-class control authority of the school administration is an element of pressure on them, and therefore, they cannot reflect the program adaptations in their lesson plans. PBS1 said, “...I do not reflect adaptations in my plans. If you examine my plans, you'll see that I adhere to the curriculum. Officially, I am preparing my documents according to the schedule in order not to have any problems in the inspection...” and expressed his/her opinion. PBS2 said, “...the principal has the authority to review my lesson plans, just in case I do not write everything I do in my plans because I do not know how the principal will approach adaptations. Maybe I'm writing small changes to the plan.” and stated that he/she agreed with PBS1.

Within the professional experience category, public school teachers expressed that there is a correlation between experience and commitment to the program as they try to fully adhere to the official program at the initial phases of their profession. Over time, with their experience, field knowledge, pedagogical and teaching profession, structure of schools, general characteristics of administrators, etc. increase, their commitment to the program decreases. “Of course, I was inexperienced in the first years of profession, I thought that I must adhere to the program exactly...Over time, I realized that no program can be completely adhered to.” (PBS1). Private school teachers expressed similar views. Teachers stated that with their increasing professional experience during their professional experience, they can predict how they adapt the activities, and how the
success levels of the learners can increase. “...I can say I have improved a lot over time. Now, looking at the activities from the headquarters, I can say that this activity is not suitable for my children, I may have a discipline problem, and I can say that it would be better for my children if I make this adaptation in this activity...” (PRS1)

Public school teachers stated that students’ level of readiness affected adherence to the curriculum in the student readiness level category. They stated that they moved away from the commitment to the program and adapted the program in the form of adding a topic or attainment in a classroom made up of students with a high level of readiness. On the contrary, they admitted to neglect the attainments or topics in the program. It is provided in Table 1 that PBS2 reflects these opinions directly to the application. “...The most essential element of education is the student, since we are teaching for them, we must take their readiness into account. Accordingly, I choose an activity, I apply it, if necessary I adapt.” and PBS2 expressed his/her opinion on the subject.

All the teachers stated that parent expectations from the preschool curriculum are high within the parent expectation category. They want to implement the activities that will increase the cognitive development of children and preparing them to the first grade of primary school in the classroom environment. However, while private school teachers stated that the parents’ demands in this direction did not affect their commitment to the curriculum due to the pressure factor of the school administration, PBS2 emphasized that while evaluating the demands from the parents in this direction, they also considered the student readiness levels. While PRS1 said, “...I cannot act according to my own will as a teacher, I cannot take into account the wishes of the parents...” PBS2 said, “...I adapt according to the parent request if the student is suitable for it...”

All the teachers stated that they changed the activities related to field trips outside the curriculum with activities that would enable learning in the classroom during the academic term in which the study was conducted. Teachers stated that this situation, which negatively affects their commitment to the program, is caused by the parent expectations. While PRS2 stated, “...parents do not want their children to participate in field trips because they think they are safe at school...” PBS1 said, “...I cannot apply the field trips in the program. Parents focus on the safety of the trips, not on the educational results, field trips are not allowed much...”

PBS1 stated an opinion in the teacher interest in the subject category. PBS1 stated that not only the student readiness but also his/her interest affected the commitment to the curriculum and that he/she adapted the program through more activities on the subject one was interested in and spending more time on this subject than the necessary amount.

**Analysis of the data collected for the fourth sub-problem**

Public school students’ parents have directly participated in teaching-learning activities in the classroom at least twice during an academic term. Besides, they conducted a maximum of three activities at home to support learning at school. Private school students’ parents did not directly participate in the teaching-learning activities in the classroom. They carried out at most two activities with their children at home. Parent views on the curriculum applied in the learning environment are categorized under three categories as the inadequacy of attainments, the inadequacy of activities, and the influence of school administration on teachers.

All parents stated, under the category of the inadequacy of attainments, that the attainments of the curricula applied by teachers in the classroom were below the readiness of the students. Moreover, the attainments that would prepare their children more cognitively for the first grade of primary school should be included in the applied program. The opinion of a parent on the subject is as follows: “...Why would they just learn to count to 20? They will count up to 100 in the first grade, they can count up to 30 already. The curriculum says to count up to 20...I think the class situation is good, I
asked the teacher. He will agree with me that he started counting up to 30…I also want letters to be taught. I think it is important in terms of preparation for literacy…” (PBS2 Student’s Parent 2)

Views in the inadequacy of activities category were grouped under two codes as diversification and participation of families in classroom activities. Private school students’ parents expressed their opinions in the activity diversification code. They stated that the activities of the program implemented in the classroom were insufficient, they wanted to add new activities to the program, but these requests were not met by the teachers.

“…I went to school and I asked why he didn't do different activities for the children other than painting, reading stories or watching cartoons...Because my child was so tired of painting in every lesson every day. The teacher wanted us to know that he/she could not do anything for me and he/she was also aware of this situation that he/she would meet with the school administration, but that we would not get results much. Whatever the headquarters sends, it is applied. They couldn't get out of it. Frankly, neither I nor my child is satisfied with this system. Sometimes the child does not even want to go to school…” (PBS1 Student’s Parent 1)

"...Students painted a painting on December 3, International Day of Persons with Disabilities. The art teacher of the school gave a picture of a disabled citizen sitting in a wheelchair in the hands of the children and said to paint it. He also sent the dyes made to parents from the whatsapp group. I asked the child in the evening, the meaning of this painting you painted today, what does it mean, what does it mean to be disabled. The child never answered. A 5-year-old can respond to these, but the practice is inadequate. I sent a web page link with sample activities to the teacher. The teacher says I cannot apply these…” (PRS2 Student’s Parent 1)

For parent participation in classroom activities, all parents agreed that they wanted to participate more in classroom activities and criticized the curriculum applied in the classroom in this respect. However, the interviews with the parents revealed that the public school students’ parents made more positive statements about this category compared to the private school students’ parents. Some of the parent views are as follows, “...although not often, I go to class to do an activity. I went once to tell fables and once to play puppets. It implies that parents should be involved in the curriculum and family education programs should be organized. Some activities are tried to be done, but they are insufficient…” (PBS2 Student’s Parent2); “…No, I could not see the child's class for a semester. One parent meeting was held in the classroom that is when I saw the class...They don't invite us to the school to do an activity…” (PRS1 Student’s Parent 1); “…I saw the child's pictures on the school's Instagram address. The art teacher had a year-end exhibition, we were not even invited to it. I could not see my child's painting in the exhibition. Our teacher then sent home all my child’s work with a bag...” (PRS2 Student’s Parent 2).

Parents stated, in the influence of school administration on teachers category, that school administration is also an factor in the effectiveness of the curriculum implemented in the classroom. Public school students’ parents stated that they were generally happy to send their children to the public school, and that they found the curriculum in the learning environment successful in general, even though there were some problems. It was mentioned that they realized that the teachers diversified the classroom activities as they wanted and they did not refer to the school administration on this issue. One of the parents said, “...I think our teacher is very comfortable in the classroom. It seems to me that he is doing the activity he wants. This is partly due to the administration. The fact that the administration is not oppressive causes the teacher to be free, and this affects the success of the program in the classroom…” (PBS2 Student’s Parent 2) and stated his/her opinion. However, private school students’ parents expressed negative opinions. Parents stated that the school administration forced teachers to adhere to the plans from the headquarters, and because of the
pressure on the teachers in this direction, teachers could not direct the curriculum they applied in the classroom as they wanted, and they could not even take into account the characteristics of the student profile. The opinion of one of the parents is as follows, “...I don’t know if administrations so many interfere with the teacher and in the classroom in every private school, but unfortunately the teacher is not free in this school. Same activities are held in all preschool classes on the same day....then students in all classes are like clones of each other. How can each class be the same? I think if the teacher were a little freer and the pressure on him was relieved, better works would be done and there would be better practices in the classroom ...” (PRS1 Student’s Parent 2).

**DISCUSSION AND CONCLUSIONS**

As a result of the study, it was determined that all participant teachers showed a high level of commitment to the preschool curriculum in the formality and moderate level in practice. Lappan (1997) stated that today there is a widespread belief that no curriculum is suitable for the teacher and that there are necessary changes that occur when the curriculum changes from a written form to an implemented form. Similarly, Forbes and Davis (2010) stated that even though teachers use curricula as intended, they generally apply them in different ways and change the programs by reinventing them instead of using them as they are.

The results suggest that the adaptation patterns of the participants were *rearrangement*, *expansion*, and *omitting*, public school teachers adapted more on the official program than private school teachers, and the adaptation patterns and codes of private school teachers were similar. All the teachers adapted to change the activity due to family reasons within the scope of the rearrangement pattern. This shows that families -one of the stakeholders of the education system- are one of the factors affecting teacher commitment to curricula. A curriculum aims to create an understanding of the citizens of a nation regarding education. Thus, the curriculum will inevitably be affected by society at the maximum level and the families at the minimum level. Families have a significant share in the effective implementation of curricula (Olibie, 2014). However, families should influence the program to support their children to get program attainments in the desired quality. Otherwise, they may impede the attainment of official programs. Although there are no studies aiming to examine the effects of families on teacher commitment to curriculum or program adaptations, some studies also found that teachers reported that they had family-related problems in the implementation of the curriculum (Erata, 2018; Güven, 2011).

One of the striking findings in the results is that only the adaptation made in the code of changing the activity in the rearrangement pattern of public school teachers is reflected in the formality, which is the lesson plan. Private school teachers did not reflect the adaptations they made in their lesson plans. The main reason why teachers cannot reflect their adaptations on the official curriculum to their lesson plans is the authority pressure, as they clearly stated in the third sub-problem of the research. Classroom practice of teachers in Turkey is carried out by school principals. However, the regulation also gives education supervisors the authority to examine teachers’ lesson plans outside the classroom (Official Journal of Turkey, 2014). Therefore, lesson plans and classroom practices are supervised. Teachers stated that they do not want to have any problems with the adaptations made in this inspection process. This result reveals (1) the participant teachers’ discomfort with supervision, (2) leads them to uncertainty about how, why, in which element of the program they take place in their curriculum adaptations, and more importantly, their contribution to the program success. The contribution to the program success should be monitored in the adaptations made on the curriculum regarding compliance with the general structure of the program. Each adaptation made by the teachers might not serve the program outcomes. Beyer and Davis (2017) stated that some adaptations might make changes that have adverse effects on the curriculum, and some teachers may not be able to make much-needed adaptations to compensate for the weaknesses of the curriculum and lesson plans. Determining which elements of the formal programs adapted by teachers and for what purpose can be helpful in the following ways, determining the overall comprehensibility of the programs, identifying the functional and non-functional elements of the programs, getting teacher
opinions on how the unproductive program elements will become functional, having an idea about the teachers' professional skills (about their pedagogical design capacities), determining the subjects they need in-service training, having an idea about formal programs will be implemented more effectively by teachers with which professional skills, to be able to evaluate the program literacy levels of teachers in the teaching process (Eryaman & Riedler, 2010). In this case, the purpose of the inspection is important. Studies showing that education inspections are in line with the understanding of bureaucratic accountability (Gündüz&Can, 2014; Deveci&Aykaç, 2019), and national education inspectors primarily check teachers for a high level of commitment to educational programs (Başdemir, 2012) in Turkey. It is necessary to move from a bureaucratic accountability approach to a professional accountability approach in educational supervision in Turkey, and the supervision process should not be an element of pressure on teachers. So that the teachers will be able to freely reflect the changes they make on the official curriculum to their lesson plans without being influenced by any factors. Therefore, clear information can be obtained about teacher’s commitment level to official programs, factors affecting adherence, program adaptation patterns, reasons and success of adaptations.

The teachers stated that apart from the school administration and parent expectations, their professional experience, student readiness level and their level of interest in the subject also affected their commitment to the official program. They agree that as their years of service increase, their commitment to the program decreases. Teachers stated that their professional experience increased in their service processes, and as their field, profession and pedagogical knowledge improved, their commitment to the program decreased in a way that contributed positively to the program outcomes. Similarly, in the study of Grossman and Thompson (2008) examining the use of the curriculum of newly recruited English teachers, they found that teachers closely followed the programs when they were just starting their jobs, and they adapted more as they became experienced. This result is consistent with the study of McDonough, Shaw, and Masuhara (2012) in which a teacher attributes various adaptation approaches to one’s experiences and professional competence. Moreover, it was determined that public school teachers made adaptations within expansion (attainment and topic addition) and omit (attainment omit) patterns, taking into account the student readiness in official programs. Readiness, which is the sum of learners’ the cognitive and affective input behaviours, is an important element that determines the quality of teaching. Anderson and Pichert (1978) stated that an individual’s knowledge, experience, and understanding capacity affect what he or she will learn and remember in the future. The public school teachers participated to this study added attainments and topics to the official curriculum by taking into account the learners’ affective input behaviours (their interests, attitudes towards the planned learning unit, academic self), and by taking into account their cognitive input behaviours (knowledge levels), they omitted some of the attainments in the program.

One of the public school teachers stated that he/she increased the time allocated to that subject (See: Chart 1, rearrangement/time adjustment), designed original activities specific to the subject (See: Chart 1, expansion/designing activity) due to his interest in the subject of the lesson. Teachers' adaptations on organizing time and designing activity on one of the contents in the official program in line with his/her area of interest, shall not significantly alter the curriculum. Remillard (2005) stated that teachers use personal resources such as their beliefs, knowledge, goals, and experiences while designing their teaching plans. These personal resources are effective in teachers’ decisions about how to use a curriculum, program materials (textbooks, supplementary resources, activities, teaching methods, etc.) in practice (Beyer&Davis, 2012). While evaluating the contribution of the adaptation made here to the program outcomes, the learner needs for adaptation should be taken into consideration as much as the teacher. The student interest in the adapted subject at least as much as the teacher and their positive reactions to the adaptations provide important clues to the teachers and then to the supervisors about the suitability of the adaptation. Kısakürek (1983) asserted that the criterion of interest is very important in the selection and arrangement of the content, regardless of how valid, meaningful and important information we choose, the expected benefit will not be achieved unless the student is interested. The following issue should also be addressed here. Li and Harfitt (2017) presented teachers’ adaptations of creating new activities and designing their teaching materials.
under the name of “creating” pattern in their study. But in this study, the adaptations of teachers in this direction are presented under the code of “designing activity” in the “expansion” pattern. The reason for moving away from the adaptation pattern in the literature in this part of the study is the purpose of the adaptation. This study assumed that teacher adapts not to design a new activity, but to ensure that the subject he is interested in is learned better with unique activities that will grab the attention of the students, that is, to improve and expand the content of the course with different activities.

The public school students’ parents in this study, criticized the preschool curriculum applied in the classroom for the fact that the attainments were below the developmental level of the children and the activities that would enable them to participate actively in the classroom were insufficient in number. However, the parents stated that apart from these problems, the curriculum applied in the classroom was shaped by the teacher, and they were satisfied with this situation and that the program was successfully implemented. Moreover, private school students’ parents thought that the activities carried out in the classroom were inadequate in terms of quality, they could not actively participate in classroom activities, and pointed to the school administration as the main reason for these negativities while stating that the school administration is a negative pressure on teachers. The parents commonly stated that they were not satisfied with the preschool education program applied in the classroom. It was determined that the participant parents found the program more successful by teachers who adapted the curriculum more in terms of attainments and efficiency. Furthermore, because they were willing to participate actively in the activities implemented in the classroom, teachers are expected to be more committed to the program with this aspect.

The family participation was included in the Pre-School Curriculum for Children of 60-72 Months, and it was also stated that one of the main sections of the teachers’ lesson plan should be “family participation” (MNE, 2013). However, it was determined in this study that especially private school teachers did not include activities that would ensure family participation in school for various reasons in their program adaptations, and they caused families to develop a negative attitude towards the school and the applied program. Although there are no studies examining the effect of this negative attitude on the educational performance of children and their commitment to school with family participation at school, a positive correlation between children's sense of responsibility and low hyperactivity (McWayne et al., 2004), and language skills of kindergarten students (Rimm-Kaufman et al., 2003).

Although this research was carried out with the participation of four teachers, it was observed that there were some gaps between the curriculum applied by teachers and the official program, and teachers needed information about program adaptation. Teachers need the training to increase their professional development in terms of examining formal programs in line with curriculum literacy (understanding the general structure, vision and mission of the program, evaluating program elements according to the features that should be included in these elements, evaluating the ministry's guidance on adherence to the program and making conclusions...), and their pedagogical design capacities. It is suggested to fill this gap on the commitment of teachers in different branches to the curriculum, program adaptations and how these adaptations are perceived by program partners (parents, school administration, education inspector, etc.) with further studies.

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Kukset Technique on Chronology Teaching

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Abstract

In this study, it was aimed to teach the chronology of National Struggle Period through KUKSET technique. The study was conducted through sequential -exploratory mixed method design which is characterized by qualitative and quantitative phases. The sample of the study consisted of 59 fourth grade students from two different classes attending at a school in Bakırköy, Istanbul. Of the participants, 32 were experimental group and 27 were control group. In the experimental group, chronology of National Struggle Period was taught by KUKSET technique whereas, in control group, the teacher used the methods of expression and question- answer without any intervention. The data was gathered by utilizing pre- test, end- test and permanency test. The students' misconceptions concerning chronology were determined by Word Association Test as pre- test and end- test. 10 voluntary students in the experimental group were interviewed. The results showed that KUKSET technique on chronology teaching of National Struggle Period in the experimental group was more effective on students' comprehension compared to the control group. KUKSET technique was revealed to be effective on eliminating students' misconceptions about the chronology of National Struggle Period. KUKSET technique was determined to enrich teaching- learning process and provide permanent learning. The students suggested KUKSET technique to be used in other lessons as well.

Keywords: Chronology Teaching, National Struggle Period, KUKSET Technique.

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INTRODUCTION

From the first educative stages, Atatürk and National Struggle Period as a course existed in the curriculum of the schools. The Kemalism issues have to be incorporated in the curriculum of each subject. The teachers have been expected to teach those compulsory Kemalism issues to their students. History of Turkish Revolution and Kemalism are included in the secondary school curriculum. In addition, this lesson and its content sexist in high school curriculum. However, the students may be observed to have difficulty in learning the chronology of National Struggle Period. The teachers stated during the interviews that the students had difficulty in comprehension since the dates followe don another and historical events were abstract. The teachers exemplified this with Erzurum and Sivas Congresses. In the fourth grade where Social Studies lessons have been started, the students go through concrete operational stage according to Piaget's Theory of Cognitive Development. In this regard, the subjects and concepts are required to be concretized in order for those students to achieve. The concept of chronology and National Struggle Period are abstract issues for students. Ünsal and Er (2017) determined the difficult disciplines to learn in Social Studies curriculum. One of the difficult disciplines concerning history in Social Studies lesson determined by teachers is chronology due to its abstract statements. According to another approach, the students who go through concrete operational stage have difficulty in learning the concepts of past and future in Social Studies curriculum (Dolmaz, Kılıç 2017). The investigation carried out by Wineburg (2000) revealed that, during concrete operational stage, children used the language effectively but cannot manage to interpret the abstract statements in the topics on the grounds that they were not compatible with children's developmental properties. Those properties along with the abstract statements of History make things difficult. Therefore, it is essential that the activities which concretize the topics and concepts for those students are carried out. A new curriculum was put into effect by the Ministry of National Education as of 2005. With the new curriculum, constructivist teaching model was adopted. It has been suggested in program development studies carried out both in 2005 and following years that the activities should be included. Nevertheless, the teachers were observed via school visits, observations and investigations to have been engaged in answering multiple choice questions extracted from structured source boks rather than preparing activities. The teachers prefer multiple choice questions instead of preparing activities in order to meet the parents' demands although there is no examination which is required for a certain grade in primary school. Furthermore, the students remain silent while answering test questions and teachers do not need to preliminary preparation for the test. Thus, the students tend to memorize the information rather than comprehending. This kind of information, apparently, is not remembered after a while. Therefore, retention plays a key role during teaching-learning process. Having permanent learning requires educational activities (Doğan, 2004). Çelikkaya and Kürüumoğlu (2019) concluded that the students had difficulty in comprehending the notion of chronology as it refers to an abstract term. Başar, Doğan, Şener, Yurttaş and Topal (2018) investigated what the participants, who are over 40, remembered about their primary school years. The participants, first of all, remembered the social activities as well as teaching-learning activities in the class. Akan and Başar (2011) argued that educational activities during primary school period facilitate students' comprehension skills. Gözalan and Koçak (2014) suggested that playing a game arouses different feelings at the same time in a child. The educational activities appeal to multiplesenses, enhancing the students' comprehension skill. The student may be able to perceive what s/he cannot perceive through visual perception through touching or hearing. Hazar and Altun (2018) highlighted that the activities should not be carried out on the student but with the student so as to provide permanent and qualified learning. Arslan (2007) emphasized that educational games and activities were the most effective ways to foster students' engagement in the lessons detracting historical concepts and events from abstraction.

KUKSET technique is a method where learning process is carried out with the students. This technique, originated from Silent Telephone game, was developed by Başar, Batur and Karasu (2014) and employed in Word training activities. "This game has been played in Kazakhstan and Kyrgyzstan under the titles of 'Simsiz Telefon' or 'Bozulgan Telefon' (Başar et al., 2014). The students are able to
both learn and entertain at the same time thanks to KUKSET technique in which social learning is conducted effectively.

In the related literature review, it was found that numerous studies concerning chronology teaching have been conducted (Çelikkaya and Kürümoğlu, 2019; De Groot- Reuvekamp, Ros& Van Boxtel, 2018; Baloğlu Üğurlu and Üzen, 2017; Ünal and Eer, 2016; Williams, 2016; Sağlam, Tınmaz and Hayal, 2015; Ulusoy and Erkus, 2015; Mosco&Peterson, 2009; Acar, 2003; Koçak, 1999). However, in the literature review, it was found that there were no studies related to KUKSET technique on chronology technique and on the comprehension of National Struggle Period. This study has been thought to fill existing gaps in the related area.

**Objective of the Study**

This study attempts to explore the effect of KUKSET technique on chronology teaching in Social Studies lessons. Based on the study objective, the research questions guiding the study were as follows:

1. What is the effect of KUKSET technique on chronology teaching of fourth grade primary schools students?
2. Which concepts did the students learn in the acquisition of the chronology of the national struggle period with the KUKSET technique?
3. What are the students’ opinions on the application of KUKSET technique on chronology technique?

**METHOD**

Explanatory sequential design, one of the mixed method designs in which quantitative and qualitative data are used together, was used in the study. In this study, focus group interview technique was carried out with 20 classroom teachers who teach fourth grades. The teachers were asked the subjects fourth grade students had difficulty in learning and comprehending in Social Studies lessons. The teachers stated that the students could not manage to comprehend chronology and, in particular, that of War of Independence. Therefore, this study is based on chronology teaching. In the study, the activities were realized based on the acquisitions that ‘the students put the events in their lives in chronological order’ in the Individual and Society Unit and that ‘the students comprehend the importance of National Struggle depending on the lives of the heroes in National Struggle Period’ in 2018 Social Studies Curriculum. The KUKSET (Silent Telephone) technique developed by Başar, Batur and Karasu (2014) was employed in this study based on the idea that it could be effective on chronology teaching.

In this regard, word association test was conducted with the purpose of determining students’ misconceptions concerning chronology. Pretest- posttest experiment and control grouped design was used as a method in the study. Among the experimental patterns, pretest- posttest paired design was used in the research. Büyüköztürk, Akbaba and Yıldırım (2010) put forward that two of the groups are attempted to be paired on certain variables and those groups are appointed to experiment and control groups with random appointment method. Mixed method was utilized in this study. Gay, Mills &Airasian (2009) identified mixed method as providing a better understanding of a certain event or phenomena by combining quantitative and qualitative methods. The study was designed as an exploratory rank study, which is a part of mixed methods. In exploratory rank study, quantitative data of the study are primarily gathered and analysed; then, qualitative data are obtained. The researcher interprets how qualitative data assist quantitative data in the first phase of the study (Creswell &Plano Clark, 2014). In this study, quantitative data were gathered and analysed. In order to reveal the effect
of KUKSET technique on chronology teaching of National Struggle Period, qualitative data was obtained and combined with the quantitative data.

With this regard, the levels of chronological order and retention skills were inspected through the application of KUKSET technique which is thought to affect the students’ achievement.

The Sample of the Study

That the students for whom one of the researchers was responsible within the framework of Teaching Practices I and II perform their application in this school, the researchers were familiar with the school structure and the teacher and students were engaged in participating in the study plays a key role in terms of determining the sample of the study. Therefore, among random sampling methods, cluster sampling method was used in this study.

Of two different classes, 59 students (32 students in experimental group and 27 students in control group) who attended in fourth grade in a primary school in Istanbul (Europe) were recruited to participate in the study through convenience sampling method.

Process

Focus Group Interview with teachers

In the study, a focus group interview with 20 fourth grade teachers in primary school were conducted. The teachers were requested to response to the question of the subjects that fourth grade students had difficulty in learning and comprehending in Social Studies lessons. The teachers stated that the students could not manage to comprehend chronology and, in particular, that of War of Independence. Therefore, this study is based on chronology teaching.

Introduction

The school where the fourth-grade students in the sample of the study have been educated was visited by the researchers within this stage of the study. The introduction activities were carried for the students not to have negative attitudes and prejudice towards the researchers. The situation was assessed by the researchers along with the parents and teachers, thereby informing parents and teachers about students’ situations. A scheme was prepared with the parents and teachers. The scheme informed them about what to do during the process. A weekly report concerning the student’s development level at the end of the practice and related activities was prepared by the researchers, parents, and teachers. No one, except teachers, parents, and researchers, was informed about the reports. The pseudonyms were used for the students. Thus, the relationship based on mutual trust was established both with the students and teachers.

The Determination of the Chronology of National Struggle Period

The dates and historical events which aimed to be taught to students were determined. The topics and dates in which the students had difficulty most were identified through the interviews with the teachers. Therefore, the historical process marked by the beginning from 19 May 1919, the day when Mustafa Kemal landed in Samsun for the first time, to the proclamation of Republic. In the light of interviews with teachers, it was found that students assumed Gallipoli Campaigns took place during National Struggle Period. In this regard, the purpose was to teach the chronology of National Struggle Period by playing games and to determine whether the games were effective in terms of students’ retention. Fifteen days following the activities, the students were negotiated about the comprehension of National Struggle Period through KUKSET technique. It was aimed, in the interviews, to evaluate the contributions of KUKSET technique to the chronology teaching and to gather related suggestions. It was found out that six lesson hours were assigned to the acquisition that proclaimed, ‘the child
comprehends the importance of National Struggle with reference to the lives of heroes.’ Accordingly, the same number of lesson hours was assigned to the processes of introduction (2 lesson hours) and common activities (4 lesson hours) within the study.

The Application Stages of KUKSET technique

The application stages of KUKSET technique are as follows:

1. The class are equally divided into two groups. As the experimental group includes 32 students, a group consists of 16 students.
2. The groups are arranged in a way that goes parallel with one another.
3. A group leader is decided by the group.
4. The rules of the game are explained to the students by the researchers.
5. The researchers, or teachers, whisper the date or historical event of the chronology of National Struggle Period to the group leaders.

A pilot application of the technique is performed twice. Subsequently, the group leader whispers the date of historical event, or the historical event taken place on a given date by the researcher or teacher. For example, when the researcher or teacher whispers 23 April 1920, the group leader requires to whisper to his/her friend that the Grand National Assembly of Turkey was opened and vice versa. In case that the group leader does not know the date or the event, s/he whispers what is said by the researcher or teachers to his/her friend and asks the friend whether s/he knows the mentioned date or the event. On the condition that his/her friend knows the afore mentioned date or event, s/he whispers the correct answer to his/her friend. The process lasts up to the last student in the group. There is a researcher or a teacher as an observer in the class in order for the students not to violate the rules of the game. The first group to come to the researcher or teacher to say the given date or historical event are permitted to speak only after both groups finish whispering. If the last student in the group says the given date or event correctly, the group gets 10 points. However, if the date or event is different from what the researcher or teacher utters, the right to speak is given to another group. Once the last student of this group says the date or event correctly, the group gets 10 points this time. If neither group manages to say the correct date or event, no group gets 10 points. The KUKSET technique is carried out at the appointed lesson hour. The application is displayed in Figure 1:
The chronology teaching of National Struggle Period was conducted by classroom teachers in control groups within the study. The teacher used the methods of expression and question-answer during two lesson hours and asked the students to complete the activities of student’s workbook during a lesson hour. Lastly, s/he requested the students to answer test questions from their supplementary book during three lesson hours. The teacher did not interfere with the activities under no circumstances.

**Data Collection Tools**

Multiple-choice test (Chronology Knowledge Test) and Word Association Test were used in this study. In addition, semi-structured interview form was employed to obtain qualitative data.

**Chronology Knowledge Test (CKT)**

CKT was developed by the researchers in order to investigate knowledge levels of fourth grade students concerning the comprehension of National Struggle Period. With this aim, the data was obtained through 5-point multiple choice test of 20 questions. Pre-pilot training for the test was applied to 56 fourth grade students from different classes in a school where the current application was not carried out. Based on the findings of the pre-pilot training of the test, it was shown that there were not any questions whose item discrimination index was under 0.30. Therefore, no question was subtracted from the Chronology Knowledge Test. In the Chronology Knowledge Test, consisting of 20 questions, mean difficulty index was 0.524; mean difficulty index of questions was 0.566 and KR-20 Cronbach’s alpha coefficient was 0.886. According to Karaca (2010), Chronology Knowledge Test was proved to be at medium level in terms of test difficulty and to have a high level of item discrimination. For reliability analysis, Kuder-Richard 20 formule was estimated as 0.89.

Prior to the activities, preliminary test was applied in order to assess the students’ knowledge concerning to the chronology of National Struggle Period. However, post-test was carried out to evaluate the difference in students’ knowledge level related to the chronology of National Struggle...
Period following the comprehension activities through KUKSET technique. A month after the post-test, a retention test was used. Thus, the students’ comprehension levels concerning the dates and historical events during National Struggle Period through KUKSET technique was evaluated.

**Word Association Test (WAT)**

WAT was used as a preliminary test in order to reveal the misconceptions of the fourth-grade students in sample group of the study concerning the concept of chronology prior to the activities of National Struggle Period through KUKSET technique. After the activities, post-test was applied to the students with the aim of assessing the difference related to the concepts in their schemes thanks to the technique and activities. The concept of chronology on which the WAT is based was determined considering the chronology of National Struggle Period. The fourth-grade students were requested to generate a word for concept of chronology within a minute.

**Semi-Structured Interview Form**

Ten students in the classroom where KUKSET technique was used were requested to respond to the question of ‘What is the effect of KUKSET technique in chronology teaching of fourth grade primary school students?’ after completing the activities. Regarding the interview questions, the opinions of two academicians in the department of Social Studies Teaching, two academicians in the department of Classroom Teaching and an academician in the department of assessment and evaluation were asked. The experts examined the data based on content analysis. The issues on which the experts agreed as a result of the analysis were converted into questions and included in the interview forms by the researchers. Thus, semi-structured interview form, one of data collection tools, was developed for the study. The personal information of the participant students was in the first part of the form. However, the second part of the form was about the fourth-grade students’ opinions on the effect of KUKSET technique on chronology teaching of National Struggle Period. Four weeks after the activities, the students’ opinions on the effect of KUKSET technique were included in semi-structured interviews which were carried out with ten students attending at a class where KUKSET technique was used in the chronology teaching of National Struggle Period. The opinions of the students were written down by the researchers as audio recording disturbed the students. The students’ opinions were coded as S1, S2, S3, etc. An interview with a students lasted for approximately 25 minutes. Each student was requested to read aloud their own opinion noted by the researcher at the end of the interviews. In addition, the students were asked whether they wanted to change their sentences. Necessary changes by the students were added and the sentences were reorganized.

**Data Analysis**

**Chronology Knowledge Test Analysis**

Normal distribution analysis was conducted through Shapiro-Wilk Test for the data obtained.

<table>
<thead>
<tr>
<th>Group</th>
<th>Statistics</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental Group</td>
<td>.943</td>
<td>27</td>
<td>.141</td>
</tr>
<tr>
<td>Control Group</td>
<td>.938</td>
<td>27</td>
<td>.107</td>
</tr>
<tr>
<td>Experimental Group</td>
<td>.909</td>
<td>27</td>
<td>.022</td>
</tr>
<tr>
<td>Control Group</td>
<td>.885</td>
<td>27</td>
<td>.006</td>
</tr>
</tbody>
</table>

The analysis indicated that preliminary tests of multiple-choice achievement test showed normal distribution. However, in posttest applications, as seen in Table 1, it did not show normal distribution. In posttest applications which did not show normal distribution, Mann Whitney-U test was conducted.
Word Association Test Analysis

The frequency for each concept was determined in WAT analysis. In pretest applications, the frequency for a word was determined as 3 at the most. Therefore, cut-off points were figured out as 1-3 and concept maps were formed in the light of cut-off points. There were 32 students in an experimental group during posttest application. As a result, the frequency of a word or a concept was determined as 32 at the most and cut-off points were figured out as 30-35. According to an analysis in a study by Bahar, Johnstone and Sutcliffe (1999), the cut-off points were decreased depending on the decrease in the answers given to the concepts. The bottom cut-off point was determined as 1-5 and concept maps were generated for each cut-off point.

Qualitative Data Analysis

The analysis of the data gathered from the interviews with students on chronology teaching of National Struggle Period was conducted through content analysis. Merriam (2013) described content analysis as a research tool in which similar data are brought together under the titles of theme, code, and sub-code in order that readers are able to interpret the concepts. In the study, the data obtained from the interviews with students and from the observations of researchers regarding the application of activities during application process were presented to the experts. The experts were from the departments of Assessment and Evaluation and Social Studies Teaching. Along with the three academicians, the data were presented to three classroom teachers working at fourth grades as well. The data were coded by three different experts and classroom teachers. The reliability value for coding was found %92 by the experts. The themes concerning the codings which experts and teachers agreed on were formed; code, sub-code and frequency were determined depending on the theme. The data were interpreted by generating a table and presenting students’ opinions.

RESULTS

The results of Independent Sample t-test conducted on the data gathered from Chronology Knowledge Test which was applied as pretest prior to the application in order to assess fourth grades students’ knowledge levels concerning the chronology of National Struggle were displayed in Table 2.

Table 2. The Pretest Analysis Results of Chronology Knowledge Test

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>Mean</th>
<th>sd</th>
<th>df</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental G.</td>
<td>32</td>
<td>7.21</td>
<td>3.27</td>
<td>57</td>
<td>.052</td>
<td>.959</td>
</tr>
<tr>
<td>Control G.</td>
<td>27</td>
<td>7.25</td>
<td>2.72</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to the findings in Table 2, there is not significant difference between experimental and control group (p > .05). Therefore, it can be interpreted that students’ levels of knowledge about the chronology of National Struggle are similar prior to the application.

However, after the application, Chronology Knowledge Test was conducted as post test to assess the students’ knowledge related to the chronology of National Struggle. The analysis results of Mann Whitney-U-Test for the data obtained from post tests were presented in Table 3.

Table 3. The Posttest Analysis Results of Chronology Knowledge Test

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>RS</th>
<th>MS</th>
<th>U</th>
<th>Z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental G.</td>
<td>32</td>
<td>1333.00</td>
<td>41.66</td>
<td>59.000</td>
<td>-5.705</td>
<td>000</td>
</tr>
<tr>
<td>Control G.</td>
<td>27</td>
<td>437.00</td>
<td>16.19</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
According to Table 3, there is a significant difference between experimental and control groups after the application (p<.01). Theme an rank has shown that the difference is found in favour of the experimental group where the KUKSET technique was carried out.

Table 4. The Analysis Results of Retention of Chronology Knowledge Test

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>RS</th>
<th>MS</th>
<th>U</th>
<th>Z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental G.</td>
<td>32</td>
<td>1336.00</td>
<td>41.75</td>
<td>56.000</td>
<td>-5.751</td>
<td>000</td>
</tr>
<tr>
<td>Control G.</td>
<td>27</td>
<td>434.00</td>
<td>16.07</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to the findings in Table 4, there has been found a statistically significant difference between experimental and control groups through the analysis carried out to determine the level of retention (p<.01). The mean rank has shown that the difference is found in favour of the experimental group where the KUKSET technique was performed.

Word Association Test

Figure 2. The Concept Map according to the Experimental Group Pretest Results of WAT

Depending on Figure 2, as cut-off point was determined as 1-3 based on pretest results and the students’ answers were investigated, three main concepts were generated which were the concept of chronology, the chronology of life and the chronology of National Struggle. A student in the experimental group wrote down an event for the concept of chronology and three students identified chronology as a date. The students identified chronology as past tense and also identified chronology through the order of date and battle for once. Depending on the chronology of life, for twice, the students wrote that they were born and started school. In addition, the students identified the chronology of life by writing that their mothers or fathers were born. For the chronology of National Struggle Period, a student wrote down the Independence War, 23 April, 29 October and 30 August for once. The students also wrote own such irrelevant concepts as technological tool, computer or computer part and a car part for the concept of chronology.
Control Group- Pretest

Figure 3. The Concept Map according to Control Group Pretest Results

Depending on Figure 2, as cut-off point was determined as 1-2 based on pretest results and the students’ answers were investigated, three main concepts were generated which were the concept of chronology, the chronology of life and the chronology of National Struggle. The students in control group identified the concept of chronology as event, to order and date for once. The students identified chronology as past tense and the order of battle for twice. For the chronology of life, the students wrote down, for twice, that they were born, started school and studied at school. For once, the students also identified chronology through writing that their mothers or fathers were born. For the chronology of National Struggle Period, the students wrote own the Independence War, 23 April, 29 October and 30 August for twice. In addition, the students also wrote own such irrelevant concepts as technological tool, computer or computer part and a car part for the concept of chronology.

The Posttest Word Association Test Result of Experimental Group

He won a victory in Anafartalar in Gallipoli Campaign.

He died at Dolmabahçe Palace on 10th November 1938.

He was born in Salonica in 1881.

He started the Independence War.

He proclaimed the Republic.

He saved the country.

He proclaimed the Republic.

29th October 1923- The proclamation of the Republic

23rd April- The Grand National Assembly was opened.
### The Chronology of Atatürk’s Life

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>20th April</td>
<td>The Grand National Assembly was opened.</td>
</tr>
<tr>
<td>29th October</td>
<td>The proclamation of the Republic</td>
</tr>
<tr>
<td>10th November</td>
<td>Atatürk landed in Samsun on 19th May.</td>
</tr>
<tr>
<td>1881</td>
<td>He was born in Salonica.</td>
</tr>
<tr>
<td>1923</td>
<td>He started the Independence War.</td>
</tr>
<tr>
<td>1923</td>
<td>He proclaimed the Republic.</td>
</tr>
<tr>
<td>1923</td>
<td>He went to Amasya and declared the Memorandum.</td>
</tr>
<tr>
<td>1923</td>
<td>The Liberation of Izmir</td>
</tr>
<tr>
<td>1923</td>
<td>Erzurum Congress</td>
</tr>
<tr>
<td>1923</td>
<td>Sivas Congress</td>
</tr>
<tr>
<td>1923</td>
<td>I. İnönü Battle</td>
</tr>
<tr>
<td>1923</td>
<td>II. İnönü Battle</td>
</tr>
<tr>
<td>1923</td>
<td>Sakarya Meydan Savaşı</td>
</tr>
<tr>
<td>1923</td>
<td>The Great Offensive</td>
</tr>
<tr>
<td>1938</td>
<td>He died at Dolmabahçe Palace in 10th November.</td>
</tr>
<tr>
<td>1938</td>
<td>He saved the country.</td>
</tr>
<tr>
<td>1938</td>
<td>He won a victory in Anafartalar in Gallipoli Campign.</td>
</tr>
<tr>
<td>1938</td>
<td>He saved the country.</td>
</tr>
</tbody>
</table>

### Atatürk’s Life

- **Independence War**:
  - started in 1920
  - ended in 1923

- **Republic**:
  - proclaimed in 1923

- **Memorandum**: declared in 1921

- **Sivas Congress**: in 1921

- **Erzurum Congress**: in 1921

- **Liberation of İzmir**: in 1921

- **Sakarya Meydan Savaşı**: in 1921

- **The Great Offensive**: in 1921
THE CHRONOLOGY OF LIFE

ATATÜRK’S LIFE

NATIONAL STRUGGLE

He was born in Salonica in 1881.

He started the Independence War.

He proclaimed the Republic.

He saved the country.

He won a victory in Anafartalar in Gallipoli Campaign.

He went to Amasya and declared the Memorandum.

He went to Şemsi Paşa Primary School.

He rests in the Anıtkabir Masoleum.

He made reforms.

He went to Manastır Military High School.

He became the president.

He went to Manastır Military High School.

He was born in Salonica in 1881.

He started the Independence War.

He proclaimed the Republic.

He saved the country.

He won a victory in Anafartalar in Gallipoli Campaign.

Atatürk landed in Ankara.

Atatürk landed in Samsun on 19th May.

29th October 1923- The proclamation of the Republic.

23rd April- The Grand National Assembly was opened.

Eskişehir- Kütahya Battle

The Liberation of İzmir

Erzurum Congress

Sivas Congress

I. İnönü Battle

II. İnönü Battle

The Battle of Sakarya

The Great Offensive
Figure 4. The Concept Map according to Experimental Group Posttest Results

In Figure 4, the concepts which were generated by the students in experimental group have been displayed as the cut-off point is determined as 30 and over. All the students in the experimental group put the chronology in order as follows: Atatürk landed in Samsun on 19th May, 1919; The Grand National Assembly was opened.

THE CHRONOLOGY OF LIFE

I was born.
I was one.
I was two.
I was three.
I was four.
I was five.
I was six and I went to preschool.
I was seven and I started to primary school.
I was eight and I started to the second grade.
I was nine and I started to the third grade.
I was ten and I attend in the fourth grade.

THE LIFE OF ATATÜRK

He was born in Salonica in 1881.
He started the Independence War.
He proclaimed the Republic.
He saved the country.
He won a victory in Anafartalar in Gallipoli Campaign.
Atatürk landed in Ankara.
Eskişehir-Kütahya Battle
Atatürk landed in Samsun on 19th May.
29th October 1923 – The proclamation of the Republic
23rd April – The Grand National Assembly was opened

NATIONAL STRUGGLE

He was given the name of Kemal.
He rests in Anıtkabir Mausoleum.
He went to Amasya and declared the Memorandum of Amasya.
He became the president.
He went to Manastir Military High School.
He went to Şems Efendi Primary School.
The Independence War
I. İnönü War
II. İnönü War
The Battle of Sakarya
The Great Offensive
Erzurum Congress
Sivas Congress
The Liberation of İzmir

I was one.
I was two.
I was three.
I was four.
I was five.
I was six and I went to preschool.
I was seven and I started to primary school.
I was eight and I started to the second grade.
I was nine and I started to the third grade.
I was ten and I attend in the fourth grade.
National Assembly of Turkey was opened on 23rd April, 1920; The Republic was proclaimed on 29th October, 1923. As the cut-off point was determined as 22-24 and the frequency as 24, students stated the declaration of the Amasya Memorandum and the liberation of İzmir. The frequencies of Congresses of Erzurum and Sivas, The First and Second İnönü Battles, Battle of Sakarya and The Great Offensive were determined as 22. As the cut-off point was determined as 12-18, the frequencies of Atatürk’s landing in Ankara and Kütahya- Eskişehir Battle were determined as 15. Based on the cut-off point being 1-5, the frequency of Independence War was 5. Concerning the chronology of Atatürk’s life, as the cut-off point was determined as 30 and over, all the students in experimental group stated that he was born in Salonica in 1881, he won a victory in Anafartalar, he started the Independence War, he proclaimed the Republic and he died in at Dolmabahçe Palace on 10th November, 1938. Depending on the cut-off point being 12-18, the students stated twelve times that he attended in Şemsi Efendi Primary School and Anıtkabir is the mausoleum of Atatürk. 14 students stated that he went to Manastır Military High School and he became the president. Furthermore, 18 students wrote down that he made reforms. As the cut-off point was determined as 1-5, 5 students noted that he was given the name of Kemal. Regarding the main concept of chronology of life, based on the cut-off point being 1-5, 5 students wrote that they were born, they were 1, they were 2, they were 3, they were 4, they were 5, they were 6, they went to preschool, they were 7, they started primary school, they were 8, they were at the second grade, they were 9, they were at the third grade, they were 10 and they were still at the fourth grade. In experimental group, 32 concepts were answered incorrectly. Those were the statements related to technology. It was observed that there were changes in misconceptions during pretest and posttest applications in experimental group. KUKSET technique was revealed to be effective on reducing misconceptions in the chronology of National Struggle Period. 19 concepts were answered correctly during pretest application whereas, in posttest application, 633 concepts were answered correctly.

Control Group- Posttest

![Concept Map](image)

**Figure 5. The Concept Map according to Experimental Group Posttest Results**

In Figure 5, as the cut-off point was determined as 1-5, based on the concept of chronology, the frequencies of time, order of battle, concepts of time was indicated to be 2. The concepts of event, to order and dates were written for once. Depending on the chronology of life, 3 students stated that they were born, they started to school and they were still attending in school. Based on the main concept of National Struggle, the Independence War was stated for twice; the concepts of 23 April, 29 October and 30 August were written for once. The number of misconceptions in control group was considerably high as shown in Table 4. It was found that there were no changes in terms of
misconceptions about the chronology of National Struggle during pretest and posttest application in control group.

Table 5. Pretest-Posttest Results of Word Association

<table>
<thead>
<tr>
<th>Key Concepts</th>
<th>Experimental Group</th>
<th>Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pretest</td>
<td>Posttest</td>
</tr>
<tr>
<td></td>
<td>Correct Concept</td>
<td>Misconception</td>
</tr>
<tr>
<td>Chronology</td>
<td>19</td>
<td>296</td>
</tr>
</tbody>
</table>

As Table 5 displays, before the KUKSET technique, as 296 misconceptions in experimental group and 302 misconceptions in control group, a total of 598 misconceptions have been determined. 352 of them consisted of the concepts regarding technology such as computer label, computer game or computer components. 124 of the misconceptions, however, were related to the names and components of cars. 54 misconceptions were concerning the tools used in daily life. 31 of the misconceptions were about such concepts of Science as biology or space, etc. 13 of them was consisted of the names of the games played in daily life. The number of the correct concepts before the KUKSET technique was 33. The students who used the correct concepts stated their own chronology of life or the descriptions of chronology. In addition, a student wrote down National Struggle within the framework of correct concepts. After the KUKSET technique, a total of 657 correct concepts (633 in experimental group, 24 in control group) were determined. The correct concepts were the chronology of National Struggle (23rd April, 1920- the Grand National Assembly of Turkey was opened, 9th September, 1922- the liberation of İzmir or 29th October, 1923- the Republic was proclaimed) and the chronology of Atatürk’s life (he was born in 1881 or he went to ŞemsiPaşa Primary School), the individual chronology of the students (I was born … or I was 1) and the arrangement of the events based on the meaning of chronology. The number of misconceptions in experimental group was reduced and of the correct concepts was increased after the KUKSET technique.

The Findings concerning Qualitative Data

The data obtained from the interviews with students who participated in KUKSET technique on chronology teaching were displayed in Table 6. Depending of the teaching of chronology theme, suggestions code about before and after the activity and the application of KUKSET technique was generated.

Table 6. Students’ Views on KUKSET Technique on Chronology Teaching

<table>
<thead>
<tr>
<th>Theme</th>
<th>Code</th>
<th>Sub-codes</th>
<th>f</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Before the activity</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Unable to comprehend the order of events in National Struggle</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Generating the chronology of life</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Attempting to memorize the topics</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Learning by having fun</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The awareness of chronology</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Learning the chronology of National Struggle</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Generating the chronology of life</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Providing retention</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Enjoying the lesson</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Implementation of the technique in other lessons</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Implementation of the technique in other classes</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Development of new activities</td>
<td>7</td>
</tr>
</tbody>
</table>

Depending on the pre-activity code, 7 fourth grade students in the interviews highlighted misconception.
Student 3:

“I assumed that chronology was a computer label. Not just me, most of my friends assumed so.”

Student 3 stated the misconception resulting from considering chronology as technology.

Student 5:

“I considered chronology as somewhere in the space.”

Student 5 stated another dimension of misconception.

Student 1:

“I assumed chronology was a car label before the activities. I did not search about it in advance as we focused on answering test questions.”

Student 1 emphasized that they did not carry out studies aiming at investigation and research during test-based teaching-learning process.

Depending on the sub-code of unable to comprehend the chronology of National Struggle, they had difficulty in comprehending the concept of chronology since they confused the dates of the events in National Struggle Period.

Student 7:

“We had several lessons about the Independence War and Atatürk’s life but I always confused the order of events. Therefore, I have difficulty in recognizing the events. For example, I always confused whether Erzurum Congress was prior to Sivas Congress or vice versa.”

Student 3 highlighted the difficulty in comprehending the chronology of National Struggle as mentioned by the teachers in focus group interviews.

Student 3:

“I confused the events related to the Independence War and the dates when the events took place. For example, I know that the Grand National Assembly of Turkey was opened in Ankara on 23th April, 1920 but I confused the date when Atatürk landed in Ankara.”

With regard to the sub-code of unable to comprehend the order of events in Atatürk’s life, the students highlighted the incomprehension problem of the order of events in Atatürk’s life.

Student 2:

“I was not able to comprehend whether Atatürk went to local school first or Şemsi Efendi Primary School.”

The student attracted attention to the chronology of life. The students had difficulty in comprehending the chronology of Atatürk’s life as well as the chronology of National Struggle Period.

Depending on the sub-code of generation of their own chronology of life, two students in the research emphasized that they were able to form their own chronology of life.

Student 4:
“In the light of our previous information, I and my mother generated the chronology of the events in my life. Therefore, I can write my chronology of life, but I confuse the dates and events of National Struggle.”

The students expressed that s/he was able to generate the chronology of life with the support of family; however, s/he was unable to comprehend the chronology of National Struggle.

Based on the sub-code of attempting to memorize the topics, the students said that they attempted to memorize the topics after a while once they were not able to comprehend the chronology of National Struggle.

Student 6:

“I memorize the topics in the lessons in an attempt to learn the topics and answer test questions. However, after a while, I either forgot or started to confuse.”

Another sub-code is learning by having fun under the code of after the activity. All the students stated that they both learnt the topics and had fun during the activity.

Student 8:

“The lessons were fun, we both learnt and had fun. I managed to comprehend the topics which I could not understand before. Learning by playing a game is better. Fortunately, we had such an activity.”

The student emphasized the importance of games for the primary school students

Student 5:

“We both played and learnt. We also learnt the things we did not know while playing games.”

The student highlighted the concepts of peer learning and social learning.

Based on the sub-code of awareness of chronology, students stated that we managed to understand what chronology was and added that they became aware of their misconceptions.

Student 1:

“I thought that chronology was a computer label before but, now, I am aware that it is the order of events.”

The student said that his/her misconception was corrected through KUKSET technique.

Depending on the sub-code of learning the chronology of National Struggle, all the students expressed that they comprehended the chronology of National Struggle through the activity.

Student 7:

“Up to now, I used to confuse the places and order of events of Independence War, but now, I both had fun and learnt the events and their chronology. I do not confuse test questions anymore.”

The student put emphasis on the effect of the activity on the comprehension of the chronology of National Struggle and his/her academic achievement.
Depending on the sub-code of generation the chronology of life, students said that they were able to generate their families’ and own chronology after they became aware of the concept of chronology.

Student 4:

“I could not understand what chronology was before. Now, I can form my family’s and own chronology of life. We live with my grandparents. I also generated their chronology of life by gathering information from them.”

Based on the sub-code of providing retention, the students said that they were able to comprehend the chronology of National Struggle which they forgot because they attempted to memorize and added that the activity provided retention.

Student 6:

“I used to forget the Independence War although we learnt it many times before, but now, I remember. I remember KUKSET technique when I am about to forget. I am not afraid of being unable to know the chronology of Independence War anymore.”

The student emphasized that s/he overcame his/ her fear of being unable to comprehend the chronology of National Struggle.

Under the sub-code of enjoying the lesson, the students said that they enjoyed the lesson which was fun because KUKSET technique on chronology teaching of National Struggle consists of game.

Student 2:

“The lesson was very entertaining; we both had fun and learnt. I came to school willingly and happily as the lesson was not boring. I and my friends were looking forward to the lesson.”

The student emphasized the effect of the activity on students’ enjoying the lesson.

Another sub-code depending on the cde of students’ suggestions concerning KUKSET technique on chronology teaching of National Struggle Period is to implement the activity in other lessons. The students stated that they enjoyed their lessons and suggested the technique to be carried out in other lessons.

Student 9:

“We enjoyed our lesson as we learnt by having fun. For example, if this activity is carried out in Turkish lessons, we can comprehend the antonyms and synonyms better.”

The student put forward a proposal regarding how different applications can be in other lessons and how the activities provided acquisitions to themselves.

5 students participating in the activity said that they learnt by having fun and suggested the activity to be carried out in other classes.

Student 8:

“We learnt by having fun. If other classes carry out this activity, they will be able to learn the topics better.”
The student referred to the prevalent effect of KUKSET technique.

Based on the sub-code of the development of new activities, the students stated that those activities helped them understand and comprehend the topics better and suggested that new activities should be developed.

Student 10:

“We learn better through the activities with games. We can learn the topics better if new activities are developed. There should be different activities during the lessons.”

The student emphasized the effect of the activities on their learning.

**DISCUSSION**

KUKSET technique on chronology teaching was determined to be effective on students’ comprehension of National Struggle Period. There was no significant difference in terms of pretest results whereas there was a significant difference in favour of experimental group regarding posttest and retention test. It was concluded that KUKSET techniques was effective on the comprehension of chronology of National Struggle Period, there by providing retention. Additionally, there are other studies complying with this study. Başar, Batur and Karasu (2014) observed that KUKSET technique was effective on students’ comprehension of synonyms and antonyms. Accordingly, in a study by Özyürek and Çavuş (2016), it was determined that games provided retention and the students attended the lessons more actively. Altınbulak, Emir and Avcı (2016) emphasized that game and activity-based teaching in Social Studies lessons contributed to students’ comprehension levels. Lieberoth (2015) stated that the students were more eager to learn as they regarded the games as activities. Babuğ and Adıgüzel (2019) concluded that creative drama activity in a museum was resulted in favour of experimental group. In short, different activities were indicated to contribute the students’ learning and academic achievement.

The misconceptions of students concerning the chronology of National Struggle Period were determined. The students were observed to regard the concept of chronology as technological tools or their components. These misconceptions by the students may be due to the fact that they closely communed with the technology. The highest number of misconceptions by the students was related to National Struggle Period. Ulusoy and Erkuş (2015) determined that there were time misconceptions in students’ history perceptions during Social Studies teaching. After KUKSET technique, it was found that the misconceptions of the students in experimental group were reduced and students managed to comprehend the chronology of National Struggle Period and Atatürk’s life. Koçak (1999) determined that the students’ being unable to comprehend the chronology of National Struggle Period in Turkey Republic and History of Turkish Revolution lesson adequately was associated with the variety of materials and activities of lesson contents. According to Misco and Peterson (2009), it was highlighted that the difficulty experienced by the students with regard to chronology learning might be resulted from students’ in difference to lessons and limited learning content. De Groot- Reuvekamp, Ros & Van Boxtel (2018) inferred that ‘Timewise’ technique on history teaching was effective on history teaching of primary school students.

During the student interviews concerning KUKSET technique on chronology teaching of National Struggle Period, it was found that, before the activities, students had misconceptions, did not manage to comprehend the chronology of National Struggle Period and experienced mental fatigue and oblivion. Brooks & Brooks (1993) emphasized that rote-learning based education was a kind of mental slavery and added that the students were incapable of interpreting the information memorized. It can be inferred that KUKSET technique is able to develop students’ interpretation skills. In addition, the technique can contribute students to establish a relationship among the concepts. Başar et al.(2018) asked 300 participants over 40 what they remembered about their years of primary school. The
participants said that they remembered the activities related to social learning and learning to learn activities most. KUKSET technique was found to contribute to learning by having fun, awareness of chronology, learning the chronology of National Struggle Period, generation of chronology of life, retention and students’ engagement in the lessons. Bayram and Çalışkan (2017) stated that gamification of Social Studies lesson was useful and effective. They argued that gamification helped students attend the lessons actively, aroused interest and positive attitudes towards the lesson among students and enhanced their motivations. Akan and Başar (2011), however, revealed that the activities supported the students’ learning and provided retention.

The students suggested that the activity required to be carried out in other lessons and classes and put forward proposals regarding the implementation of new activities. The KUKSET technique was proved to provide retention as well as entertain the students. Bayram and Çalışkan (2019) revealed that gamification of Social Studies lesson was useful and effective and added that it helped students attend the lessons actively, aroused interest and positive attitudes towards the lesson among students and enhanced their motivations. Hwang, Chiu, and Chen (2019) conclude that the students learnt effectively and their motivations were increased in Social Studies lesson through a computer game they developed. Zayimoğlu Öztürk and Öztürk (2018) carried out the activity of time capsule in Social Studies lesson and found that the students who participated in the activity were interested in the lesson.

In short, it has been concluded that KUKSET technique was effective on the comprehension of the chronology of National Struggle Period since it consisted of both game and learning and was suitable for the developmental properties of primary school students.

**SUGGESTIONS**

**Suggestions concerning Research Results**

It was determined that the students were able to comprehend the chronology of National Struggle Period through KUKSET technique. In this regard, conducting game-based activities in the lessons during primary school may provide retention.

The students participated in all the activities during the process of chronology teaching of National Struggle Period through KUKSET technique. The students stated that they took place in the activities willingly and eagerly. Using KUKSET technique in the lessons may provide social and peer learning.

Various techniques apart from KUKSET technique may be developed and employed in teaching process.

An in-service training for the teachers may be carried out in order to introduce the KUKSET technique.

**Suggestions concerning the Researchers**

The effect of KUKSET technique on different lessons may be investigated.

Various techniques, similar to KUKSET technique, in the lessons may be developed and investigated.

The efficacy of KUKSET technique may be assessed through different methods.

The efficacy of KUKSET technique on different teaching stages may be investigated.
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Investigation of Counting Skills of Pre-School Children

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Giresun University

Abstract

The research aims at examining the counting skills of children in the preschool period. For this purpose, this study has been planned according to the “survey model”. The study group of the research is comprised of 108 children with ages between 60th-72nd months, who attend kindergartens. The “Counting Skills Test” has been used, which has been developed by the researcher as a data gathering tool. The research concluded that the preschool children possessed good levels in the skills of “rhythmic counting, stable order, counting the next number, abstraction, cardinal number and recognizing numbers” and that they had no problems therewith.

Keywords: Education, Preschool, Mathematics, Counting Skills

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INTRODUCTION

Pre-school mathematics education involves many concepts such as counting, measurement, graphics, estimation, probability, geometric shapes, temporal and spatial position. One of the concepts of mathematics that children should learn in pre-school is the number system. Counting is a complex skill that involves sorting numerals in the correct order, assigning each item in the set a numeral and counting each object only once (Arnas, 2006; Charlesworth and Lind, 2007; Van de Rijt and Van Luit, 1998). To help children better understand numbers, they are advised to count real objects, which forms their experience. Day activities for children should include songs, finger games and stories that involve counting and children should be accompanied during these activities. In young children, counting begins with rote counting (ability to recite the names of numbers by heart) and continues with logical counting (matching the name of each number with an object in a group in correct order). Even if they can count small numbers (one, two, three, four) consecutively using objects and say the last number as the answer to the question ‘How many?’, children cannot fully comprehend the numerical meaning of that number (National Association for the Education of Young Children [NAEYC], 2008). As they learn by counting objects in sets, children begin to make sense that numbers refer to quantities. They begin to use numbers to solve everyday problems, such as how many spoons they will need for a group or how many sides are there in a rectangle. When they start kindergarten, they need to be ready to associate numbers and groups. To fully and accurately count objects, the child should know the names of numbers in the correct order and be able to coordinate his/her eyes, hands, speech and memory (Charlesworth and Lind, 2007). Researchers conclude that finger counting plays an important role in young children’s making sense of mathematics. It has been established that using fingers for counting, comparison, and application in simple operations forms a basis for children to comprehend numbers up to 10 (Copley, 2000).

The National Council of Teachers of Mathematics (NCTM) (2000) focuses on the development of counting from rote counting toward logical counting. In addition, children are expected to learn about the relative position and magnitude of whole, ordinal and cardinal numbers and their connection with each other; develop a sense of whole numbers; and represent and use them in many ways. These expectations must be realized using real-world experiences and physical materials. Therefore, active learning environments, experiences and methods are needed for children in early childhood to develop the concepts and skills they will use in the future (Baroody and Ginsburg, 1990; Curtis, Okamoto and Marie-Weckbacker, 2009; Young-Loveridge, 2004). It is highly important for children to acquire counting skills in early age. This is because children who fail to acquire or fully comprehend this skill, which is the basis of mathematics, will have problems in later levels of education (Aunio, Hautamäk and Van Luit, 2005). Additionally, there are standards for ‘number and operations’ set by NCTM from pre-school through primary school grade 2. These standards are specified in Table 1.

Table 1. NCTM Standards and indicators for pre-school through grade 2

<table>
<thead>
<tr>
<th>STANDARDS</th>
<th>INDICATORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understand numbers, ways of representing numbers, relationships among numbers, and number systems</td>
<td>Count with understanding and recognize ‘how many’ in sets of objects Use multiple models to develop initial understanding of place value and the base-ten number system Develop understanding of the relative position and magnitude of whole, ordinal, and cardinal numbers and their connections Develop a sense of whole numbers and represent and use them in flexible ways, including relating, composing, and decomposing numbers Connect number words and numerals to the quantities they represent, using various physical models and representations Understand and represent commonly used fractions such as ½ and ¾ Understand situations that entail multiplication and division, such as equal groupings of objects and sharing equally</td>
</tr>
</tbody>
</table>
In the pre-school curriculum, prepared by the Turkish Ministry of National Education (MoNe) (2013), the counting-related achievement, 'Count objects', has the following indicators: 'Count up/down rhythmically one by one, denote as many objects as represented by the specified number, tell how many objects are counted, tell the ordinal number and tell the number that comes before and after a number among numbers up to 10'. Therefore, the skills related to rhythmic counting, counting down saying the previous number, saying the next number and telling ordinal and cardinal numbers are included in the scope of this study. The counting principles, namely, stable-order principle, abstraction principle, subitizing and order-irrelevance principle, developed by Gelman and Gallistel (1986) and the counting on principle that requires an advanced cognitive level and is used in the addition operation, developed by Clements and Sarama (2009), are also included in the skills investigated as part of this study. These skills and principles are briefly described below.

**Rhythmic counting:** Rhythmic counting is a mechanical pronunciation of number words that children learn through imitation of adults (Güven, 2005). Rhythmic counting is a preliminary achievement for counting and is like singing for children (Aktaş-Arnas, 2012). Children first learn to count rhythmically with single-digit numbers. Rhythmic counting consists of reciting the names of numbers in order by rote and without any objects. Children first acquire the skill of rhythmic counting with single-digit numbers (such as 1, 2 and 3), followed by the ability to count objects (Arnas, 2006; Stock, Desoete and Roeyers, 2009).

**Counting on:** Counting on is a skill that children use in addition. Counting on requires a more advanced cognitive level. When the child is shown first a picture of four apples, followed by a picture of three more apples and asked how many apples there are, the child is expected to find the result not by starting from the beginning but by counting 5, 6 and 7 (Clements and Sarama, 2009).

**Counting down:** Compared with the skill of counting up, it is harder for children to acquire the ability to count down (Wynn, 1992). Counting down helps children comprehend the subtraction operation and get to know the number system better. Counting down is a skill that is also used by some children to solve subtraction problems. Children see counting down as an entertaining task, and they like to practice this topic and show their skills (Arnas, 2000; Sperry Smith, 2009).

**Stable-order principle:** It means the memorization of counting words used by adults in a certain order. In counting, it is the rule specifying that number words should be recited in a certain, stable order. In order for children to be able to count, they need to know the order of the number words (Gelman and Gallistel, 1978; Trust, 2005; Sperry Smith, 2009). The sound patterns children learn from children's songs in the nursery can also be considered a reflection of this principle. Through repetitions, children understand that that numbers have a stable order and they recognize that this is a principle that underlies counting (Haylock and Cockburn, 2014).

**Stating previous and next numbers:** For pre-school children stating the numbers that come after a specific number is harder than stating the numbers that precede a specific number. In other words, when the numbers before a number are recited and children are asked to state the number that follows them, they find it harder to answer, whereas when a number is said and children are asked to state the numbers following it, they find it easier to answer. After the age of four, children start comprehending the rule that the number following a specific number is greater (Güven, 2005).

**Abstraction principle:** This principle suggests that children should understand the rule that every countable object should be counted. For counting, it is not necessary for the objects in a set to be related to each other. The essential thing is that the items in the set should be countable. It does not matter what the counted object is; the process is exactly the same for children, animals, counting disks or fingers (Gelman and Gallistel, 1978; Haylock and Cockburn, 2014). Children should realize that the various toy farm animals, such as cows, chickens, and ducks, given to them do not have to be the same in order for them to count (Sperry Smith, 2009).
**Subitizing:** Children’s ability to see instantly how many there are without counting when a set of objects is shown. With a small number of objects, children can realize how many there are without counting them. Subitizing as a shortcut to counting develops as a skill after learning counting. If a child can tell the number of items in a set without counting them, it can be said that he/she has begun to understand numbers. The rate of correct answers by children decreases as the quantities of the items involved increases and the items become more dispersed. Notably, counting by looking is more difficult than counting by touching (Clements, 1999; Le Corre et al., 2006). There are two forms of subitizing: perceptual and conceptual. Perceptual subitizing consists of determining the number of items in a group without actually counting them. Young children often learn to subitize up to four items perceptively. In other words, when a set of four items is shown, they can tell you that there are ‘four’ items without counting. Conceptual subitizing involves seeing number patterns within a set just like seeing larger dot patterns in a domino (Charlesworth and Lind, 2007).

**Order-Irrelevance Principle:** This principle states that the result will not change wherever you start counting unless other counting policies are violated. It is an understanding that the result will not be affected regardless of whether you start counting from the beginning or from the middle. In other words, children should be able to count regardless of how the set is sorted without being arranged side by side. Children face difficulties in learning this rule. Teachers may need to act as a model by guiding children when they are faced with difficulties and using concrete examples to show that the outcome will not change regardless of where they start. According to Gelman, three-year-old children cannot understand this rule, but four-year-old children can better understand it (Gelman and Gallistel, 1978; Güven, 2005).

**Ordinal numbers:** These numbers are used to specify the order or position of an item. They answer the question, ‘Which is the order?’ Ordinal numbers require the knowledge of ordering or sorting. Examples of the use of ordinal numbers include children using phrases such as ‘Let the child in the fifth row come, or ‘We live on the second floor’ and four 5-year-old children competing among themselves and determining the winner and those who came second, third, fourth or last at the end of the race (Baroody, 2004; Buldu, 2010). Brannon and Van de Walle (2001) noted that children even at the age of two noticed numerical differences and ordinal characteristics of numbers up to six.

**Cardinal number principle:** According to this principle, children should realize that the most recent number that they say when counting the items in a set denotes the total number of items in the set. If a child can answer the question ‘How many?’, it can be said that he/she has comprehended the cardinal principle (Baroody, 2004). The cardinal principle requires having conceptual knowledge about the result of the counting process; children can recognize the cardinal characteristics of numbers at the age of three to four (Bruce and Threlfall, 2004; Fuson, Grandau and Sugiyama, 2001; Nye, Fluck and Buckley, 2001; Zur and Gelman, 2004).

**Numerals:** Children making sense of the symbols of numerals at first is one of the findings that indicate they have gained experience in counting numbers. In the age of five to six, children can count from 1 to 20 with the knowledge of their meaning and can state the number of items in a set, counting the items one by one. They can recognize the numerals from 1 to 10, say their names, and sort them in order (Metin, 1992). They understand their meanings later. Observations show that children usually first learn the numerals denoting their age. Instead of showing the numerals by typing them on paper, children should be provided concrete examples such as making numerals with play dough and drawing numerals on the ground. The use of paper and pen for teaching them numerals should not be hurried. It should be noted that the child’s failure to write numerals properly does not mean that he/she does not know or understand numbers. It is difficult for the children who have not mastered fine motor skills or hand-eye coordination to write numerals properly (Taşkın, 2019).

Examination of literature reveals that numerous studies on counting have been conducted in Turkey. However, these studies focused on specific areas, such as knowledge of numbers (Aktaş-Armas, Deretarla-Gül and Şıgırtmaç, 2003; Avcı, 2015; Bolat and Şıgırtmaç, 2006; Develi and Orbay,
This study discusses many skills of pre-school children related to counting (rhythmic counting, counting down, counting on, stable order, telling the previous or next number, abstraction, order irrelevance, subitizing, ordinal numbers, cardinal numbers, saying the numerals), thus significantly contributing to literature. For this purpose, answers for the following questions were sought:

1) At what level are the rhythmic counting skills of children aged 60–72 months?
2) At what level are the counting down skills of children aged 60–72 months?
3) At what level are the counting on skills of children aged 60-72 months?
4) At what level is the stable-order principle of children aged 60-72 months?
5) At what level are the skills for telling the next number of children aged 60–72 months?
6) At what level are the skills for telling the previous number of children aged 60–72 months?
7) At what level are the skills related to the abstraction principle of children aged 60–72 months?
8) At what level are the skills of the order-irrelevance principle of children aged 60–72 months?
9) At what level are the subitizing skills of children aged 60–72 months?
10) At what level are the skills regarding the ordinal number principle of children aged 60–72 months?
11) At what level are the skills regarding the cardinal principle of children aged 60–72 months?
12) At what level are the skills for recognizing numerals of children aged 60–72 months?

**METHOD**

**Research model**

This study examines the counting skills of pre-school children. For this purpose, it is planned to fit the ‘survey model’. This research is a descriptive study that questions the current situation. In the descriptive survey model, answers to research problem(s) are sought by analyzing the data obtained from a large number of subjects and objects within a certain period (Arseven, 200; Karasar, 2010).

**Study group**

The study group consisted of 108 children (48 girls and 60 boys), aged between 60 and 72 months, who attended pre-school institutions in Giresun Province, Turkey. The study group was selected using the proportional cluster sampling method, which is one of the cluster sampling methods. In proportional cluster sampling, the chance by which each sub-population is represented in the sample is representative of the proportions in the population (Karasar, 2010). To create a proportional cluster sample, the children in the study group were selected by creating sub-populations based on
‘upper’, ‘middle’ and ‘lower’ socio-economic levels, as the schools attended by the children in the population may differ in terms of research findings. Statistical information about parental socio-economic status prepared by Giresun Provincial Directorate of National Education was used with permission to determine the socio-economic level for this study. The children were selected evenly: 36 from upper, 36 from middle, and 36 from lower socio-economic level.

**Data collection tool**

The ‘Counting Skills Test’ developed by the researcher was used as a data collection tool. The Counting Skills Test is designed to determine 12 counting-related skills of pre-schoolers, namely, ‘Rhythmic Counting’, ‘Counting Down’, ‘Counting On’, ‘Stable-Order Principle’, ‘Knowing the Next Number’, ‘Knowing the Previous Number’, ‘Abstraction Principle’, ‘Order-Irrelevance Principle’, ‘Subitizing’, ‘Ordinal Number’, ‘Cardinal Number’, and ‘Recognition of Numerals’. For each counting skill, 12 pictures were shown to children and they were asked to give their answers in accordance with the instructions of the researcher. The researcher marked the test in accordance with the answers given by the children.

**Table 2. Examples of how the Counting Skill Test was implemented**

<table>
<thead>
<tr>
<th>Skill</th>
<th>Directive</th>
<th>Explanation</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstraction principle (Figure 1)</td>
<td>Children are shown a picture containing 10 objects: two ducks, two strawberries, three candies, and three peppers. They are asked to tell what is in the picture.</td>
<td>It is said to the children: ‘We now have some objects in front of us. Can you tell me how many objects there are in the picture?’</td>
<td>( ) He/she counted all the objects correctly as 10.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>( ) He/she gave wrong counts for all objects.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>( ) He/she counted correctly by grouping the objects as two ducks, two strawberries, three candies, and three peppers.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>( ) He/she counted erroneously by grouping the objects as two ducks, two strawberries, three candies, and three peppers.</td>
</tr>
<tr>
<td>Ordinal number (Figure 2)</td>
<td>Children are shown a picture containing 10 different objects. They are asked to state the ranking of the turtle and the dog.</td>
<td>The researcher says: ‘Now, you have some objects in front of you. I will ask you question about some objects’. He/she asks, ‘What is the ranking of the turtle?’ After the child answers it, he/she asks, ‘What is the ranking of the dog?’</td>
<td>( ) He/she answered both questions correctly.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>( ) He/she answered correctly for the turtle in the 4th rank.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>( ) He/she answered erroneously for the turtle in the 4th rank.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>( ) He/she answered correctly for the dog in the 7th rank.</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>( ) He/she answered erroneously for the dog in the 7th rank.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>( ) He/she answered both questions erroneously.</td>
</tr>
</tbody>
</table>

In the development of the Counting Skills Test, first, a literature survey was carried out and draft materials were created. Then, the pictures were prepared in accordance with the items. In addition to the researcher, one mathematics educator who studied mathematics in early childhood and one art educator worked together to prepare the pictures. After agreeing on the design, the pictures were prepared by the art educator. The draft test obtained after the materials and pictures were created was piloted with 30 children by the researcher, accompanied by a pre-school teacher and a fourth grader of pre-school teaching. The necessary revisions were made in accordance with the feedback obtained from the pilot test.
To test the validity of the Counting Skills Test, content validity was used. The technique developed by Lawshe (1975) was employed for content validity. To this end, the following stages were followed: creation of a group of field experts, preparation of draft scale forms, obtaining expert opinions, obtaining content validity ratios related to the items, obtaining content validity indices related to the scale, and creation of the final form based on content validity ratios/index criteria. In Lawshe’s method, opinions of minimum 5 and maximum 40 experts are needed. Expert opinions on each item are rated ‘essential,’ ‘useful but not essential’, or ‘not necessary’ to the performance of the construct. In addition to content validity, expert opinions can also be rated for intelligibility of items, their appropriateness for the target audience, etc. Accordingly, expert opinions on any item are collected to obtain content validity ratios (CVR). CVRs are calculated by subtracting 1 from the ratio of the number of experts who mark an item ‘essential’ to the total number of experts expressing their opinions regarding that item (Yurdugül, 2005). In this study, the content validity was determined using the opinions of five faculty members who conducted research in mathematics education in early childhood. In the form given to the experts, they were asked to mark the items in the form as ‘suitable’, ‘not suitable’ or ‘needs revision’ and revise the items. The content validity of the items was statistically examined using Lawshe’s method in accordance with the data received from the experts. Yurdugül (2005) stated that the CVR of any item must be minimum .99 to use that item based on
opinions from five experts. As a result of the statistical analysis, it was found that the CVR of each item of the ‘Counting Skills Test’ was greater than .99, and therefore, it was concluded that no item should be removed. However, some articles were revised according to the feedback from the experts, and the test form was finalized.

**Data collection**

The research data were collected in May and June in the 2018–2019 academic year. Counting skills are included in the achievements starting from September or October. However, due to the cumulative characteristics of learning and the ‘spiral’ nature of the curriculum, teachers may return to achievements and indicators over and over again with different activities as needed throughout the process. Thus, achievements can be given and consolidated and their permanence can be ensured (MoNE 2013). For this reason, the data for this study were collected in May and June toward the end of the academic year.

Official permission was obtained from Giresun Provincial Directorate of National Education for the collection of data. In addition, written permission was obtained from the parents of the children who participated in the study group. The children who did not want to participate in the study or answer questions were not included in the study. Voluntary participation of the children was sought. The researcher was seated at a table with the child, and the researcher had the materials ready in advance. Before starting the test, the researcher made the necessary explanations and tried to comfort the children by chatting with them. Before starting the test, the researcher said to each child, ‘Today, we will look at some pictures with you and talk about these pictures’. The children were called one by one using areas outside the classroom (such as guidance room, teachers' room, and director’s room) to prevent children from being influenced by each other. Each child was given the same instruction. The answers of the children were not intervened in any way. If the child did not understand the question, the researcher repeated it once or twice, but the question was not repeated for any wrong answer. If the child said that he/she did not understand the question, the question was asked once again by the researcher. The test forms were numbered by writing the names of children on them. The duration of application of the test for each child was between 30 and 40 minutes.

**Data analysis**

The data obtained were transferred by the researcher to the Microsoft Excel program, and the values of ‘n’ were calculated individually for each item in the scale form. The values obtained in this way were tabulated before being interpreted.

**RESULTS**

The results related to sub-problem 1: At what level are the rhythmic counting skills of children aged 60–72 months?

In this section, the researcher said to the child, ‘I can count from 1 to 10,’ and counted from 1 to 3. Then, the researcher asked the child, ‘Can you count to 10 now?’ The distribution of the answers related to the children's rhythmic counting skills is given in Graph 1.
Graph 1. Distribution of the children’s rhythmic counting skills

In Graph 1, the following results were obtained for the item related to ‘Children's rhythmic counting skills’: Could count (n = 97; 89.8%), Could count to... (n = 6; 5.5%), Could count, but skipped some numbers (n = 3; 2.7%), Could not count (n = 2; 1.8%).

The results related to sub-problem 2: At what level are the counting down skills of children aged 60–72 months?

In this section, the investigator said to the child, ‘There are 10 birds in this picture. I can count these birds from 10 down to 1’ and counted from 10 down to 8. Then, the research asked the child, ‘Come on, can you count from 10 down to 1 now?’ The distribution of the answers related to the children’s counting down skills is given in Graph 2.

Graph 2. Distribution of the children's counting down skills

In Graph 2, the following results were obtained for the item related to ‘Children's counting down skills’: Could count (n=57; 52.7%), Could count down to ... (n=39; 36.1%), Could count, but skipped some numbers (n=6; 5.5%), and Could not count (n=6; 5.5%).

The results related to sub-problem 3: At what level are the counting on skills of children aged 60-72 months?
In this section, the researcher showed the child a picture of 10 ducks. Five ducks were covered and five were open. The child was first asked to count by showing five ducks. After the child finished counting, the researcher uncovered the other five ducks and asked, ‘Now, how many ducks are there?’ The distribution of the answers related to their counting on skills is given in Graph 3.

Graph 3. Distribution of the children’s counting on skills

In Graph 3, the following results were obtained for the item related to ‘Children's counting on skills’: Counted correctly starting from 1 (n=54; 50%), Counted starting from 6 (n=31; 28.7%), Counted erroneously starting from 1 (n=15; 13.8%), and Started to count starting after 5 but counted erroneously (n=8; 7.4%).

The results related to sub-problem 4: At what level is the stable-order principle of children aged 60-72 months?

In this section, the researcher said to the child, ‘I'm going to show you some objects, lined up in different ways. Can you count the corns first and then the nuts?’ The distribution of the children's answers regarding the stable-order principle is given in Graph 4.

Graph 4. Distribution of the children’s skills related to the stable-order principle

In Graph 4, the following results were obtained for the item related to ‘Children’s skills related to the stable-order principle’: Counted both groups in the correct order from 1 to 10 (n=78; 72.2%), Counted only one group in the correct order from 1 to 10 (n=16; 14.8%), and Made mistakes in both groups (n=14; 12.9%).
The results related to sub-problem 5: At what level are the skills for telling the next number of children aged 60–72 months?

In this section, the researcher placed a picture containing dogs in front of the child and asked the child to count the dogs. After the child finished counting, the researcher said to the child, ‘Can you tell me which numbers comes after 5?’ The distribution of the answers related to the children's skills for telling the next number is given in Graph 5.

Graph 5. Distribution of the children's skills for knowing the next number

In Graph 5, the following results were obtained for the directive, ‘Can you tell me what comes after 5?’: Could tell the number after 5 correctly (n=83; 76.8%), Did not tell the number after 5 (n=13; 12.03%), and Could not tell the number after 5 correctly (n=12; 11.1%).

The results related to sub-problem 6: At what level are the skills for telling the previous number of children aged 60–72 months?

In this section, the researcher placed a picture containing turtles in front of the child and asked the child to count them. After the child finished counting the turtles, the researcher said to the child, ‘Can you tell me what number comes before 7?’ The distribution of the children's answers regarding the skills for telling the previous number is given in Graph 6.

Graph 6. Distribution of the children's skills for telling the previous number

In Graph 6, the following results were obtained for the directive, ‘Can you tell me what number comes before 7?’: Could not tell the number before 7 correctly (n=55; 50.9%), Could tell the number before 7 correctly (n=40; 37.03%), and Did not tell the number before 7 (n=13; 12.03%).
The results related to sub-problem 7: At what level are the skills related to the abstraction principle of children aged 60–72 months?

In this section, the researcher placed a picture containing 10 objects, namely, two ducks, two strawberries, three candies, and three peppers, in front of the child and asked the child, ‘There are some objects in front of us. Can you tell me how many objects there are?’ The distribution of the answers related to the abstraction principle skills of the children is given in Graph 7.

Graph 7. Distribution of the children's abstraction principle skills

In Graph 7, the following results were obtained for the directive, ‘Can you tell me how many objects there are?’: Counted correctly by grouping objects as two ducks, two strawberries, three candies, and three peppers (n=74; 68.5%), Counted all objects correctly as 10 (n=16; 14.8%), Counted all objects erroneously (n=10; 9.2%), and Counted erroneously by grouping objects as two ducks, two strawberries, three candies, and three peppers (n=8; 7.4%).

The results related to sub-problem 8: At what level are the skills of the order-irrelevance principle of children aged 60–72 months?

In this section, the researcher showed the child a picture of 10 dolphins lined up in order and asked the child to count first by starting from the beginning. After the child finished counting, the research said to the child, ‘Can you count again, this time starting from the fifth object?’ The distribution of the children's answers regarding the order-irrelevance principle skills is given in Graph 8.

Graph 8. Distribution of the skills of children regarding the order-irrelevance principle
In Graph 8, the following results were obtained for the directive, ‘Can you count again, this time starting from the fifth object?’: Counted correctly in both cases (n=59; 54.6%), Counted correctly up to 10 starting from the beginning, but could not count to 10 starting from the middle (n=26; 24.1%), Counted erroneously in both cases (n=19; 17.5%), Counted correctly up to 10 starting from the middle, but could not count up to 10 starting from the beginning (n=4; 3.7%).

The results related to sub-problem 9: At what level are the subitizing skills of children aged 60–72 months?

In this section, the researcher put a picture of five strawberries in front of the child and said to the child, ‘Can you tell me how many objects there are without counting with your fingers?’ The distribution of the answers on the children's subitizing skills is given in Graph 9.

Graph 9. Distribution of the children's subitizing skills

In Graph 9, the following results were obtained for the directive, ‘Can you tell me how many objects there are?’: Found the correct answer by counting (n=55; 50.9%), Found the correct answer without counting (n=43; 39.8%), Found the wrong answer by counting (n=7; 6.4%), and Found the wrong answer without counting (n=3; 2.7%).

The results related to sub-problem 10: At what level are the skills regarding the ordinal number principle of children aged 60–72 months?

In this section, the researcher said to the child, ‘There are some objects in front of you. I'm going to ask you questions about some objects’. Then, the researcher asked, ‘What is the ranking of the turtle?’ After the child answered this question, the researcher asked, ‘What is the ranking of the dog?’ The distribution of answers related to children's skills regarding the ordinal number principle is given in Graph 10.

Graph 10. Distribution of the children's skills regarding the ordinal number principle
In Graph 10, the following results were obtained for the directive, ‘What is the ranking of objects?’: Knew both correctly (n=51; 47.2%), Did not know both (n=21; 19.4%), Knew the turtle in the fourth rank correctly (n=15; 13.8%), Did not know the dog in the seventh rank (n=15; 13.8%), Did not know the turtle in the fourth rank (n=3; 2.7%), and Knew the dog in the seventh rank correctly (n=3; 2.7%).

**The results related to sub-problem 11:** At what level are the skills regarding the cardinal principle of children aged 60–72 months?

In this section, the researcher put a picture of pears in front of the child and said, ‘There are pictures of pears in front of you. I want you to count these pears’. After the child finished the counting process, the researcher asked, ‘Can you tell me how many pears there are?’ The distribution of the answers related to children’s skills regarding the cardinal principle is given in Graph 11.

<table>
<thead>
<tr>
<th>Knew correctly how many objects there were in total</th>
<th>Knew correctly how many objects there were in total by counting again</th>
<th>Could not know how many objects there were in total by counting again</th>
<th>Could not know how many objects there were in total without counting again</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>79</td>
<td>108</td>
<td>9</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>

**Graph 11. Distribution of the children's skills regarding the cardinal principle**

In Graph 11, the following results were obtained for the directive, ‘How many pears are there?’: Knew correctly how many objects there were in total without counting again (n=79; 73.1%), Knew correctly how many objects there were in total by counting again (n=13; 12.03%), Could not know how many objects there were in total by counting again (n=9; 8.3%), and Could not know how many objects there were in total without counting again (n=7; 6.4%).

**The results related to sub-problem 12:** At what level are the skills for recognizing numerals of children aged 60–72 months?

In this section, the researcher showed a picture containing numerals 1 to 9 to the child and asked the name of each numeral in mixed order. The distribution of the answers related to children’s skills for recognizing numerals is given in Graph 12.

<table>
<thead>
<tr>
<th>Correct(n)</th>
<th>Wrong(n)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>108</td>
<td>108</td>
</tr>
<tr>
<td>13</td>
<td>108</td>
<td>108</td>
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<td>17</td>
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<tr>
<td>33</td>
<td>108</td>
<td>108</td>
</tr>
<tr>
<td>49</td>
<td>108</td>
<td>108</td>
</tr>
</tbody>
</table>

**Graph 12. Distribution of the children's skills for recognizing numerals**
In Graph 12, the following results were obtained regarding ‘Children's skills for recognizing numbers’: Correct (n=94; 87.03%) and wrong (n=14; 12.9%) answers for numeral 1, Correct (n=95; 87.9%) and wrong (n=13; 12.03%) for numeral 2, Correct (n=95; 87.9%) and wrong (n=13; 12.03%) for numeral 3, Correct (n=91; 84.2%) and wrong (n=17; 15.7%) for numeral 4, Correct (n=91; 84.2%) and wrong (n=17; 15.7%) for numeral 5, Correct (n=75; 69.4%) and wrong (n=33; 30.5%) for numeral 6, Correct (n=81; 75%) and wrong (n=27; 25%) for numeral 7, Correct (n=75; 69.4%) and wrong (n=33; 30.5%) for numeral 8, and Correct (n=59; 54.6%) and wrong (n=49; 45.3%) for numeral 9.

CONCLUSION AND DISCUSSION

The results of this study demonstrated that the skills of pre-schoolers for ‘rhythmic counting, stable order, telling the next number, abstraction, cardinal numbers and recognizing the numerals’ were at a good level and they did not have any problem regarding these skills. The study also found that these children were rather adept at rhythmic counting skills. When literature is examined, it is seen that rhythmic counting was reported to be among the first skills children acquire (Bruce and Threlfall, 2004; Olkun et al., 2014; Sarnecka and Carey, 2008). However, the fact that children can count rhythmically up to 10 does not mean that they have mastered the counting skill. Similarly to the results of this study, Pekince and Dağlıoğlu (2017) found that the children were successful regarding stable order (83.1%), cardinal (74.4%) and abstraction (60.8%) principles. The results of the study Baroody conducted with children aged 4 years and Develi and Orbay (2002) with children aged 4–6 years demonstrated that the majority of the children successfully understood cardinal numbers. Likewise, the children’s skills related to the stable-order principle were satisfactory. In their study with primary school first graders, Olkun et al., (2014) found that some of the children acquired the stable-order principle more quickly than the cardinal principle. However, their skills for ‘counting down, counting on, telling the previous number, order irrelevance, subitizing and ordinal numbers’ were not satisfactory and they had problems in those skills. Literature suggests that different materials and techniques should be used to support the development of counting skills. It can be argued that these results may be due to lack of use of special materials for counting skills in pre-school education institutions in Turkey. Therefore, active learning environments, materials, books and gamification methods are needed to support pre-schoolers in developing the concepts and skills of mathematics that they will use in the future (Baroody and Ginsburg, 1990; Curtis, Okamoto and Marie-Weckbacher, 2009; Young-Loveridge, 2004). This study revealed that the children were not good at the order-irrelevance principle. Stock, Desoete and Roeyers (2009) indicated that the order-insignificance principle is an essential counting skill along with the one-one and stable-order principles. Similarly, the results of this study demonstrated that the children were not successful in terms of their skills for counting down. However, counting on is a skill that children use particularly in addition. Counting on requires a more advanced cognitive level. When a pre-schooler is shown a picture of four apples and then three more apples and asked to tell how many apples there are, the child is expected to reach the result by counting 5, 6, and 7 (Clements and Sarama, 2009).

In this study, the children were not successful in terms of their skills for telling the previous number. Literature reports that children find it harder to learn numbers before a number than the number that comes after a number. In this regard, it can be said that the results of this study were similar to those reported in literature (Güven, 2005). This study also found that the children were not good at in their counting down skills. When the literature is examined, it is seen that the skills for countdown is harder to acquire than the skills for counting up. Nevertheless, the failure to acquire the counting down skill may adversely affect children's future math skills. Children learn that counting does not always start with 1, counting can go up or down, and counting down is a basis for the acquisition of subtraction skill (Hudson and Miller, 2006; Reys et al., 2012; Wynn, 1992).
In this study, it was observed that the children did not fully comprehend the ordinal numbers although it is one of the important counting skills. However, literature reported that pre-schoolers could acquire this skill. Brannon and Van de Walle (2001) noted that even at the age of two, children could recognize numerical differences and ordinal characteristics of the numbers. In children aged five years, sequencing concepts such as ‘first, second, next, and last’ begin to develop (Geist, 2001; NAEYC, 2008). In this study, it was also found that the children’s subitizing skills were not satisfactory. Young children often learn to subitize up to four items perceptively. In other words, when a group of four items is shown, they can tell you that there are ‘four’ items without counting (Charlesworth and Lind, 2007). In light of this information, it can be said that the children failed to acquire many counting skills mentioned in MoNE’s pre-school curriculum (2013). Therefore, it is recommended that children’s achievements should be evaluated closely and support should be provided for the achievement not acquired. In addition, teachers and pre-service teachers should be provided concrete examples about how to conduct activities related to counting skills and teachers should be encouraged to include activities related to all counting skills and use well-defined materials, methods, and techniques. Furthermore, experimental studies should be conducted concerning the shortcomings in the counting skills of children revealed in this study.

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Empathy and Video Game Addiction in Adolescents: Serial Mediation by Psychological Resilience and Life Satisfaction

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Abstract

In this study, it was examined whether empathy is related to video game addiction and whether psychological resilience and life satisfaction mediate this relationship. The sample comprised 324 Turkish adolescents (aged between 11 and 15, mean of age was 13.01), who completed measures of empathy, psychological resilience, life satisfaction, and video game addiction. The results of the serial multiple mediation analysis demonstrated that empathy had a significant direct effect on video game addiction. Psychological resilience had a mediating effect on the association between empathy and video game addiction. Also, life satisfaction had a mediating effect on the association between empathy and video game addiction. Psychological resilience and life satisfaction, serially (in combination) mediated the relationship between empathy and video game addiction. The results of the present study are discussed within the related literature. It is suggested that video game addiction interventions should focus on increasing empathy, psychological resilience, and life satisfaction.

Keywords: Empathy, Video Game Addiction, Psychological Resilience, Life Satisfaction, Adolescents, Serial Mediation

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INTRODUCTION

Video games (electronic games and computer games can be used interchangeably with video games) have become a part of modern culture since the 1970s. William Higinbotham's experiment named Tennis for Two (1958) is regarded as the first two players game. Tennis for Two can be considered as the beginning of the video game industry (Ahl, 2008). The video game industry has become a $159 billion industry by 2020. It is estimated that 2.7 billion people played video games in 2020 (Field Level Media, 2020). Video games, which are seen as an entertainment tool in modern culture, can cause behavioral addiction in some cases (Derevensky et al., 2019). Due to the increasing prevalence of video game addiction, it is considered as a "condition for further study" in DSM-5 (American Psychiatric Association, 2013). DSM-5 stated that video game addiction is characterized by "persistent and recurrent use of the internet to engage in-games, often with other players, leading to clinically significant impairment or distress" (American Psychiatric Association, 2013, p. 795). It was also stated that the diagnostic criteria for technology addictions (e.g., video game addiction) may be similar to the criteria for substance use addiction or gambling addiction. Epidemiological estimates of internet and video game addiction range from 1 percent to 26.8 percent (Susman et al., 2018). These rates show that a substantial part of the society is addicted to video games.

Empathy and Video Game Addiction

Empathy is defined as the ability to correctly understand the feelings of another and sharing correctly these feelings with another (Decety & Lamm, 2006). Empathy skill is seen as a vitally important skill for individuals' social interactions. Lack of empathy can cause individuals to be unable to establish healthy social interactions (Kalisch, 1973). It was found that the amount of playing video games is related to decreasing individuals' quality interpersonal interaction and increasing their social anxiety levels (Lo et al., 2005). Individuals also meet their socializing needs while playing computer games (Griffiths et al., 2015; Weinstein & Aboujaoude, 2015). Besides, computer games provide individuals with the opportunity to socially connect with other players and be part of a group (Olle & Westcott, 2018). Therefore, it can be expected that there is a negative relationship between empathy and game addiction.

Rehbein et al. (2015) defined computer game addiction as the "use of games to escape from negative mood or real-life problems". Coping with negative moods is associated with emotion regulation strategies (Bloore et al., 2020). Individuals' negative emotions can be regulated by computer games or internet activities (Lindenberg et al., 2020). Emotion regulation is a concept that contributes to the empathy of individuals. Emotion regulation and empathy in adolescents are linked (Henschel et al., 2020). Therefore, lack of empathy may result from difficulties in regulating individuals' emotions. It can be thought that the inability to cope with negative mood may cause play computer games excessively.

Empathy has a mediating effect between violent games and aggression (Bartholow et al., 2005), and also exposure to violent video games were found to be associated with low empathy (Funk et al., 2003). Accordingly, it was thought that empathy and video game addiction may be related. Besides, a relationship was found between the level of empathy and video game preferences (Siyez & Baran, 2017). A relationship has also been found between empathy and internet addiction (Hui et al., 2019; Lachmann et al., 2018). Empathy is a concept related to addiction, and it has been argued that empathy can cause addiction in the context of cause-effect relationships and vice versa (Ferrari et al., 2014). In this study the view that empathy causes game addiction was adopted. A relationship has been found between empathy concern and social media addiction (Dalvi-Esfahani et al., 2021). It has also been found that low empathy is associated with problematic internet use (Melchers et al., 2015). Based on all these findings, it is thought that empathy is associated with game addiction.
Mediators as Psychological Resilience and Life Satisfaction

Psychological resilience can be defined as the ability to adapt to negative situations in a positive way. When the adolescents in the risk group in terms of psychological resilience were compared, it was found that adolescents with a high level of psychological resilience were less likely to become addicted to gambling (Goldstein et al., 2012; Lussier et al., 2007). Besides, it has been found that the alcohol consumption level of university students has a negative correlation with psychological resilience. (Johnson et al., 2011). Also, psychological resilience has been considered as a protective factor in-game addiction (Robertson et al., 2018). In this direction, it was thought that psychological resilience is negatively related to game addiction.

Life satisfaction has been considered as a key indicator for an individual to adapt to changes that occur as a result of living conditions (Diener et al., 1999; Turan & İskender, 2020). Life satisfaction is defined as the individual's cognitive evaluation of their life (Pavot, 1991). Interventions aimed at increasing the quality of life are thought to contribute to the general health status of the individuals (Raphael, 1996; Zullig, 2001). Zullig (2001) showed that there is a significant relationship between decreased life satisfaction and smoking, alcohol, and drug addiction. Differences in life satisfaction can change adolescents' coping strategies. Adolescents may show addictive behaviors to cope with changes in life satisfaction (Zullig, 2001). Also, a relationship was found between life satisfaction and internet addiction (Lachmann, et al., 2018). Therefore, it is thought that there is a relationship between life satisfaction and video game addiction.

Emotional competencies such as empathy are required for successful social interaction (Seidel et al., 2012). Empathy is related positively to social connection, life satisfaction and negatively to depression, social anxiety, and psychopathology (Morelli et al., 2015). Empathy is positively related to psychological resilience (Cao & Chen, 2020; 2021) and life satisfaction (Wang et al., 2019). Empathy is an important skill that includes understanding and feeling the emotional states of individuals. Empathy also is positively correlated with positive emotions (Morelli et al., 2017). Positive emotions predicted increases in both resilience and life satisfaction (Cohn et al., 2009). So, it is thought that empathy is related to both psychological resilience and life satisfaction.

Vinayak & Judge (2018) found that both empathy and resilience are predictors of psychological well-being. Psychological resilience is a dynamic structure that includes adolescents' ability and capacity to cope successfully with risk factors (Stewart et al., 1997). Psychological resilience factors predict psychological well-being (Gullone & Cummins, 1999). Psychological resilience also is considered an important variable and a protective factor in increasing the life satisfaction of adolescents (Arslan, 2019; Caqueo-Urízar, 2020). Previous studies have shown that there is a positive relationship between psychological resilience and life satisfaction (Karreman & Vingerhoets, 2012; Shi et al., 2015; Tümlü & Recipoğlu, 2013). Resilience also is a predictor of life satisfaction in the students of success and failure (Abolghasemi & Varaniyab, 2010).

Psychological resilience has been considered as a mediator variable in many studies. Arslan (2019) found that psychological resilience predicts life satisfaction in adolescents and it plays a mediating role in the relationship between social exclusion and life satisfaction. Karreman & Vingerhoets (2012) found that resilience is related to life satisfaction and it has a mediating effect relationship between attachment and well-being. Resilience also is found to be the mediator variable in the relationship between mindfulness and life satisfaction (Bajaj & Pande, 2016). It has been found to have a mediator role in the relationship between stress and life satisfaction (Shi et al., 2015). Caqueo-Urízar (2020) found that resilience also predicts life satisfaction and it plays a mediating role in the relationship between ethnic identity and life satisfaction. It is thought that psychological resilience may have a mediating role in the relationship between empathy and video game addiction in adolescents.
Relationships have been found between life satisfaction and somatization, general health, anxiety, depression, anger, paranoid thoughts, sleep disturbance (Arrindell et al., 1991). A low level of life satisfaction is associated with individuals’ addictive behaviors (Zullig, 2001). Life satisfaction has also been considered as a mediator variable in many studies. Life satisfaction has been found to have a mediating effect in the relationship between distressing events and neurotic impairment (Baruffol et al., 1995). It has been found that life satisfaction has a mediating role in the relationship between positive-negative effect and Cognitive Symptoms of Problematic Internet Use (Senol-Durak & Durak, 2010). It was also found that life satisfaction has a mediator role in the relationship between childhood maltreatment and depressive symptoms (De Vasconcelos et al., 2020). It is thought that life satisfaction may have a mediating role in the relationship between empathy and game addiction in adolescents.

In many studies resilience has been shown to predict life satisfaction (Abolghasemi & Varaniyab, 2010; Vinayak & Judge, 2018; Gullone & Cummins, 1999; Arslan, 2019; Caqueo-Urízar, 2020; Karreman & Vingerhoets, 2012; Shi et al., 2015; Bajaj & Pande, 2016). When the relationships between empathy, game addiction, psychological resilience, and life satisfaction are evaluated in general, it can be thought that psychological resilience and life satisfaction have a serial mediating effect on the relationship between empathy and game addiction. Therefore I proposed the following hypotheses:

H1. Empathy is negatively related to video game addiction.

H2. Psychological resilience mediates the relationship between empathy and video game addiction.

H3. Life satisfaction mediates the relationship between empathy and video game addiction.

H4. Psychological resilience and life satisfaction serially mediate the relationship between empathy and video game addiction.

**METHOD**

**Participants**

The sample consists of 324 adolescents 172 females (53%) and 152 males (47%) from Turkey. The ages of the study participants ranged from 11 to 15. The average age of the participants in the study is 13.01. The weekly computer game playing time is 4.67 hours. Permission was obtained from the ethics committee of the author’s university for the study. The study was conducted at all by using the Declaration of Helsinki ethical guidelines. The characteristics of participants are presented in Table 1.

**Table 1. Sample characteristics**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency (n)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>172</td>
<td>53.09</td>
</tr>
<tr>
<td>Male</td>
<td>152</td>
<td>46.91</td>
</tr>
<tr>
<td>Grade</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>87</td>
<td>26.85</td>
</tr>
<tr>
<td>7</td>
<td>108</td>
<td>33.33</td>
</tr>
<tr>
<td>8</td>
<td>129</td>
<td>39.82</td>
</tr>
<tr>
<td>Financial status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>National minimum wage and below</td>
<td>189</td>
<td>58.33</td>
</tr>
<tr>
<td>National minimum wage above</td>
<td>135</td>
<td>41.67</td>
</tr>
<tr>
<td>Grade (Out of 100)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>70 and over</td>
<td>188</td>
<td>58.03</td>
</tr>
<tr>
<td>From 50 to 70</td>
<td>110</td>
<td>33.95</td>
</tr>
<tr>
<td>50 and below</td>
<td>26</td>
<td>8.02</td>
</tr>
</tbody>
</table>
Measures

**Empathy Scale for Children and Adolescents Turkey Form**

The scale was developed by Bryant (1982). The adaptation study of the scale was conducted by Gürtunca (2013). The scale consists of 21 items. It is a structured yes/no questions type scale. “1” point is given for each “yes” answer and “0” point is given for “no” answer. High scores from the scale indicate a high level of life empathy. The minimum score that can be obtained from the scale is 0 and the maximum score is 21. In this study, the internal consistency reliability coefficient of the scale was found to be .64.

**Adolescent Psychological Resilience Scale**

The scale was developed by Bulut et al. (2013). The scale consists of 29 items. It is a 4-point Likert-type scale. High scores from the scale indicate a high level of psychological resilience. The minimum score that can be obtained from the scale is 29 and the maximum score is 116. In this study, the internal consistency reliability coefficient of the scale was found to be .80.

**The Satisfaction with Life Scale**

The scale was developed by Diener et al. (1985). The adaptation study of the scale was conducted by Köker (1991). The scale consists of 5 items. It is a 7-point Likert-type scale. High scores from the scale indicate a high level of life satisfaction. The minimum score that can be obtained from the scale is 5 and the maximum score is 35. In this study, the internal consistency reliability coefficient of the scale was found to be .67.

**The Game Addiction Scale for Adolescents-Short Form**

The scale was developed by Anlı & Taş (2013). The scale consists of 9 items. It is a 5-point Likert-type scale. High scores from the scale indicate a high level of video game addiction in line with the criteria for the diagnosis of DSM V. The minimum score that can be obtained from the scale is 9 and the maximum score is 45. In this study, the internal consistency reliability coefficient of the scale was found to be .71.

Data Analysis

PROCESS macro was used to perform mediation analysis. PROCESS is a macro that can work with SPSS, SAS, and R statistical package programs. In the present study PROCESS macro for SPSS was used. PROCESS macro provides to “estimating direct and indirect effects in single and multiple mediator models”. Model 6 of PROCESS macro is a serial multiple mediator model. Model 6 of PROCESS Macro has been applied in the present study (Hayes, 2018). Model 6 was used for to examine the mediation effects of how empathy affects psychological resilience, how psychological resilience affects life satisfaction, and how life satisfaction affects video game addiction, with psychological resilience and life satisfaction as mediators. SPSS PROCESS macro provides isolation of each mediator’s (psychological resilience [hypothesis 2] and life satisfaction [hypothesis 3]) indirect effect separately. Also, it provides exploration of two mediators (psychological resilience and life satisfaction) indirect effects [hypothesis 4] in serially (van Jaarsveld et al., 2010). It is used the method 5000 bootstrap samples and 95% CIs of the indirect effects for the mediational analyses (Hayes, 2018).
RESULTS

Preliminary Analyses

Descriptive statistics and binary correlations of the study are presented in Table 2. Findings indicated that video game addiction was negatively related with life satisfaction ($r = -0.27$), psychological resilience ($r = -0.34$), and empathy ($r = -0.29$). Empathy was positively related with life satisfaction ($r = 0.25$) and psychological resilience ($r = 0.26$). Life satisfaction was positively related with empathy ($r = 0.25$).

Table 2. Descriptive statistics and binary correlations among study variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>M</th>
<th>SD</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1- Empathy</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td>14.47</td>
<td>3.21</td>
<td>-0.540</td>
<td>-0.033</td>
</tr>
<tr>
<td>2- Psychological resilience</td>
<td>.26</td>
<td></td>
<td></td>
<td></td>
<td>91.13</td>
<td>10.77</td>
<td>-0.551</td>
<td>-0.034</td>
</tr>
<tr>
<td>3- Life satisfaction</td>
<td>.25**</td>
<td>.42**</td>
<td></td>
<td></td>
<td>22.37</td>
<td>7.54</td>
<td>-0.195</td>
<td>-0.676</td>
</tr>
<tr>
<td>4- Game addiction</td>
<td>-.29**</td>
<td>-.34**</td>
<td>-.27**</td>
<td></td>
<td>18.02</td>
<td>6.19</td>
<td>.495</td>
<td>-.453</td>
</tr>
</tbody>
</table>

**$p < 0.001$

The findings showed that the skewness values ranged from $-0.55$ to $0.50$ and kurtosis values ranged from $-0.68$ to $-0.03$. It was found that all reliability coefficients of the measures are above $0.60$. All Mahalanobis distance values was below 15. The VIF values ranged from 1.25 to 1.41 and the tolerance values ranged from $0.80$ to $0.91$. There was no problem of multicollinearity and residuals.

Serial Multiple Mediational Analyses

Results of the serial multiple mediation analyses are presented in Figure 1. It was found a negative direct effect of empathy on video game addiction (total effect, $b = -0.563$, $p < 0.001$). When the mediators (psychological resilience and life satisfaction) were included, the analysis results showed that this coefficient was reduced but it was still significant (direct effect, $b = -0.388$, $p < 0.01$). Empathy was also found to be a positive predictor of psychological resilience ($b = 0.867$, $p < 0.001$) and life satisfaction ($b = 0.365$, $p < 0.01$). According to the results, Hypothesis 1 has been confirmed.

It was found a significant indirect effect of empathy on video game addiction via psychological resilience ($b = -0.116$, $SE = 0.04$, 95% CI = $[-0.201, -0.050]$). Also, the indirect effect of empathy on video game addiction via life satisfaction was also significant ($b = -0.036$, $SE = 0.02$, 95% CI = $[-0.086, -0.001]$). According to results in the relationship between empathy and video game addiction, psychological resilience and life satisfaction have mediating effects separately. Hypothesis 2 and hypothesis 3 have been confirmed.

Lastly, the indirect effects of empathy on video game addiction via both psychological resilience and life satisfaction were tested. The relationship was significant with a point estimate of $-0.023$ (testing serial multiple mediation; $SE = 0.01$, 95% CI = $[-0.051, -0.001]$). According to results in the relationship between empathy and video game addiction, psychological resilience and life satisfaction have mediating effects serially. Hypothesis 4 has been confirmed.
Table 3. Indirect effect of empathy on video game addiction via psychological resilience and life satisfaction

<table>
<thead>
<tr>
<th>Path</th>
<th>Coefficient</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empathy ➔ Psychological resilience ➔ Video game addiction</td>
<td>−.116</td>
<td>−.201 −.100</td>
</tr>
<tr>
<td>Empathy ➔ Life satisfaction ➔ Video game addiction</td>
<td>−.036</td>
<td>−.086 −.001</td>
</tr>
<tr>
<td>Empathy ➔ Psychological resilience ➔ Life satisfaction ➔ Video game addiction</td>
<td>−.023</td>
<td>−.051 −.001</td>
</tr>
<tr>
<td>Total effect</td>
<td>−.563</td>
<td>−.765 −.362</td>
</tr>
<tr>
<td>Direct effect</td>
<td>−.388</td>
<td>−.591 −.186</td>
</tr>
<tr>
<td>Total indirect effect</td>
<td>−.175</td>
<td>−.265 −.100</td>
</tr>
</tbody>
</table>

Note. CI = confidence interval, LL = lower limit, UL = upper limit

As a result, all hypotheses of the present study have been confirmed (see Table 3). The results have been indicated that empathy negatively predicts video game addiction. It was found that there is an indirect relationship between low empathy and high video game addiction. The results showed that the relationship between low empathy and high video game addiction is partially mediated by lower levels of psychological resilience and lower levels of life satisfaction (see figure 1).

![Figure 1. The results of serial multiple mediational model](image)

DISCUSSION

This study has been designed to obtain better insight into the possible associations between empathy and video game addiction with the possible serial role of psychological resilience and life satisfaction as mediators. The first hypothesis of the present study was empathy will be negatively related to video game addiction. Video game addiction is a behavioral addiction experienced by many individuals today (Derevensky et al., 2019; Savci et al., 2021). As hypothesized in the present study empathy is related to video game addiction negatively. Video game addiction is closely related to social interaction and being part of a group (Olle & Westcott, 2018). Empathic individuals can establish healthy interpersonal communication (Kalisch, 1973). The reason why empathy negatively
predicts video game addiction may be related to social relations. Besides, empathy is considered as a protective factor in terms of game addiction (Olle & Westcott, 2018). Therefore, video game addiction interventions should be aimed at increasing empathy in parallel to the findings of this research.

Video game addiction is a concept closely related to emotional processes. For example, an fMRI study conducted by Leménager et al. (2014) found that individuals who are addicted to video games have a robustly emotional identification with their avatar than with a photo of themselves. Empathy is a concept that expresses the correct understanding of emotions (Decety & Lamm, 2006). Empathy contributes people to share emotions and sharing emotions provides to maintain good relationships (Jackson et al., 2015). Therefore, the relationship between empathy on video game addiction is obtained as a result of this study and this result is consistent with previous research findings.

As a result of this study, it was found that there is a negative relationship between empathy and video game addiction. Video game addiction is considered a problem that can be seen intensely in adolescence and adolescents are considered to be a risk group for video game addiction (Griffiths et al., 2015). Considering the negative relationship between empathy and video game addiction obtained as a result of this study, empathy can be considered as a protective factor in the process of video game addiction. Parents' expressing their feelings to their children and providing environments where their children can express their feelings may increase children’s empathy skills. Increasing empathy can also prevent computer addiction in children and adolescents. Video game addiction in adolescents may also cause low school grades (Anand, 2007; Chiu et al., 2004; Leung & Lee 2011; Skoric et al., 2009). In this direction, it can be thought that the healthy and empathic relationship between family-child and the interventions to increase empathy by experts (eg counselors, teachers) can contribute to the prevention of video game addiction in children and to contribute to their academic success.

The link between narcissism and video game addiction has been demonstrated in previous studies (Kim et al., 2007). One of the most prominent features of narcissism is a lack of empathy (American Psychiatric Association, 2013). Narcissists lack empathic abilities and it can be seen that narcissists develop many behavioral addictions such as gambling addiction and game addiction (Bilevicius et al., 2019). Therefore, the relationship between narcissists' lack of empathy and behavioral addictions supports the findings of the present study.

The second hypothesis of this study is that resilience has a mediating role in the relationship between empathy and game addiction. One of the motivations to play computer games was considered to escape. Individuals who encounter stressors may sometimes use an escape-avoidance coping strategy. Escaping can be considered as the process of taking refuge in the virtual world from the difficulties of real-life (Laconi et al., 2017). Escape-avoidance coping is related negatively to resilience (Holahan et al., 1996; Rabenu & Yaniv, 2017). The mediating role of psychological resilience in the relationship between empathy and game addiction may arise from this situation. Playing excessive video games can cause sleep, eating, and nutritional disorders, personal and social interaction problems, depression, and anxiety. Due to the attractiveness, popularity, and easy accessibility of computer games, excessive computer game playing behavior may develop in many individuals (Derevensky et al., 2019). These relationships between psychopathology and game addiction support the mediating role of psychological resilience in video game addiction.

The third hypothesis of this research is that life satisfaction has a mediating role in the relationship between empathy and game addiction. Computer games, especially online games, are seen as a virtual socialization area where individuals experience social interactions today (Laconi et al., 2017). Bargeron & Hormes (2017) found a relationship between game addiction and high levels of anxiety, stress, depression, and low life satisfaction. Quality of life or life satisfaction may provide understand and intervention of the pathology -i.e. addiction-(Gullone & Cummins, 1999). Video game addicts have higher levels of depressive mood and lower levels of self-esteem (Laconi et al., 2017). Relationships between life satisfaction and psychopathology have been the subject of many studies.
There is a negative relationship between life satisfaction and psychopathology (Arrindell et al., 1991; Baruffol et al., 1995; De Vasconcelos et al., 2020). This may explain the mediating role of life satisfaction in the relationship between empathy and game addiction.

The fourth and final hypothesis of this study is to examine the serial mediating role of psychological resilience and life satisfaction in the relationship between empathy and video game addiction. In this direction, six direct effects and three indirect effects have been examined. In this study, empathy was directly related to psychological resilience, life satisfaction, and video game addiction; resilience directly affects life satisfaction and video game addiction; life satisfaction was found to have a direct effect on video game addiction. It was also found that psychological resilience (M1), life satisfaction (M2), and psychological resilience and life satisfaction in a series (M1 ---> M2) have a mediating role in the relationship between empathy and video game addiction. According to these results, it is suggested that video game addiction interventions should focus on increasing empathy, psychological resilience, and life satisfaction.

It is suggested that enhancing psychological resilience may contribute to the increasing life satisfaction of adolescents (Abolghasemi & Varaniyab, 2010). Psychological resilience is an important concept for the individual in all stages of life (Ryff & Singer, 2003). For instance, Smith & Hollinger-Smith (2015) found that higher resilience was associated with greater happiness scores in older adults. Faisal & Mathai (2017) found that resilience is related to wellbeing in adolescents. Psychological resilience is considered an important factor in increasing life satisfaction. There is also neurological evidence that psychological resilience predicts life satisfaction. Kong et al. (2015) showed the neural correlates of the relationship between resilience and life satisfaction. It was also suggested that resilience interventions be used to increase the well-being of clinical and non-clinical samples. In this direction, the verification of this hypothetically tested model (see figure 1) with neurological methods such as functional magnetic resonance imaging (fMRI) may contribute to the validity of the present study.

REFERENCES


Nomenclature of Cyclic and Aromatic Hydrocarbons by Educational Games: OrgChemGame*

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Abstract

Educational games can be used as an effective means of transferring knowledge in a fun way to complement education and training. The aim of the study was to develop a game and get students' opinions on the game that can be played in Organic Chemistry courses in order to teach the names of commonly used organic compounds with cyclic and aromatic structure. The game, which is called OrgChemGame can be played with at least 3 individuals, one of whom is the referee. The game set includes 48 pcs of 3 cm diameter styrofoam balls with structural formulas of organic compounds identified. OrgChemGame was played by 20 students taking the organic chemistry lecture and studying in the 2nd grade of the Science Education program at a state university in Turkey. The opinions of the students about the game were taken with the opinion form prepared by the researchers. As a result of the research, it was determined that the sizes and colors of the balls and cubes used in the game were appropriate, and the texts used were readable. As a result, OrgChemGame has been designed as an educational game having a purpose and rules. It aims to acquire target behaviors and appropriate to the level of the students, allowing the students to learn with fun, and having sufficient duration and comprehensibility.

Keywords: OrgChemGame; Educational Game; Organic Chemistry, Science Education

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INTRODUCTION

Educational games increase the student's interest in the lesson, ensure the permanence of information, creativity and imagination facilitating the development of skills such as synthesis (Kaptan & Korkmaz, 2001; Kaya & Elgün, 2015; Kayabaşı & Akbaş, 2017; Yıldız, Şimşek & Ağdaş, 2017). These are the activities aiming at learning by doing, living, and where students can participate individually or as a group in certain places, time and rules (Güneş, 2014; Özdenk, 2007). Educational games are also an effective tool to motivate students while learning science (Orlik, 2002) and to increase student motivation (Garris, Ahlers & Driskell, 2002). An educational game designed to be used in the teaching process needs to go through a planning process, be appropriate to the level of the students, be unique, interesting and understandable (Heidemann & Hewitt, 2010; Tok, 2009). Since the students have fun while playing games, adding the game into the education increases their participation in the class while entertaining them (Kukul, 2013). As a matter of fact, Kaya and Elgün (2015) stated that teachers would contribute to student success when they implemented games effectively in the classroom without making much change in the program.

Starting from the preschool period, the use of educational games is included in all levels of education. In this context, there are some games designed on chemistry topics. A crossword puzzle (Erdik, 2003) and a sudoku puzzle containing amino acids and functional groups (Perez & Lamoureux, 2007) were designed to test the ability of undergraduate students to remember organic reactions and reagents. In addition, the following games; “Ion Education Set (IES)” (Yenikalaycı, Çelikler & Aksan, 2017), which aims to teach ions as an educational card game, “CHEMCompete” (Gogal, Heuett & Jaber, 2017) which is used to understand the chemical reactions of alkyl halides and the mechanisms of these reactions, “Retrosynthetic Rummy” (Carney, 2015) to make synthesis applications of functional groups and reaction types more enjoyable for students, have been developed. Card games help students improve their academic performance (Rajashekar & Bellad, 2016). There are also different games developed for teaching chemistry subjects. For example, “ChemOkey” (Kavak, 2012) was designed for teaching the names and symbols of anions and cations, and “The Fastest Fingers” game for teaching naming, isomerism and basic reaction schemes (Eastwood, 2013).

As well as, draw attention to the importance of organic chemistry laboratory in addition to organic chemistry course, found that there are general deficiencies in the students’ knowledge of separation and purification of organic compounds, purity control methods and structure determination of organic compounds by spectroscopic methods (Yılmaz, Uludağ & Morgil, 2001). The reason for this deficiency may be that the theoretical knowledge of organic chemistry is not fully understood. From this point of view, it is thought that the educational games to be developed will help the students to comprehend the basic and applied organic chemistry subjects. The aim of the study was to develop a game and get students’ opinions on the game that can be played in Organic Chemistry courses in order to teach the names of commonly used organic compounds with cyclic and aromatic structure.

We developed this game because college students had trouble writing organic compounds. This game is planned to contribute to the naming of cyclic and aromatic hydrocarbons in chemistry. Organic chemistry topics are usually presented in printed form in textbooks, worksheets and exam evaluations offered to students, and are taught and evaluated using paper and pencil. In this study, we aimed to attract students' interest in the subject by using different materials such as balls and cubes. Similarly, Harman and Çelikler (2020) determined that the use of the model-based teaching method is effective in teaching the geometric structures of molecules to science students.

The game has been developed based on strategy. In real-time strategy games, which is a type of strategy-based games, players compete with their opponents through mutual moves (Korkusuz & Karamete, 2013). Likewise, in this study, students played their games simultaneously.
METHOD

While developing the OrgChemGame, the opinions of experts, whose fields are science education and chemistry education, were taken first. Later, the game developed as a draft was played to the students; this process was observed by the researchers and the students' opinions about the game were taken. Also, it is thought that taking the opinions of the target group that will play a game can provide clues in content arrangements. In this direction, arrangements were made and the game was finalized.

Research Model

The case study design, one of the qualitative research methods, was used in the study. In case studies, one or several situations are analyzed holistically within their own limits (environment, time, etc.) (Yıldırım & Şimşek, 2011).

Research Group

OrgChemGame was played by 20 students taking the organic chemistry lecture and studying in the 2nd grade of the Science Education program at a state university in Turkey. Before starting the game, the students were divided into small groups. During the playing of the game, cooperative learning was carried out in small groups formed. These students, who voluntarily participated in the research, acquired basic information about organic chemistry subjects within the scope of chemistry course during their high school education. At the same time, all of the students were taking the organic chemistry course. It is thought that the students should be taking this course in order to be able to play the game aimed to be developed without forgetting to learn the names of organic compounds in cyclic and aromatic structures and to express their opinions about the game due to their current readiness.

Data Collection Tools

OrgChemGame

OrgChemGame can be played with at least 3 people including a referee of the game. The game set contains 48 pcs of 3 cm diameter styrofoam balls, in which the structural formulas of organic compounds are drawn. In addition, there are 16 cubes with 2.5 cm side length on which the numbers of the compounds, punctuation marks, Latin inserts and alkyl groups to be used are written during the formation of the name of the compounds and 1 checklist containing the names of the compounds. The balls and cubes in the game set are given in Figure 1.

![Figure 1. Balls and cubes in the game set](image)

As the rules of the game, in the beginning, a student chooses one of the balls that are given to him/her in the bag containing organic compounds. Then s/he tries to form the name of the organic compound with the structural formula on the balls using the cubes in the game set. S/he sorts the cubes side by side in the same direction so that the generated name is read. The referee then evaluates the accuracy of the answers given according to the checklist and determines the winner according to the number of correct answers at the end of the game. After the referee receives the answers from the
students in each round, when there are incorrect answers, s/he creates the correct answer by lining up the cubes, thus preventing the referee from making bias. For example, a referee can be replaced as a player every 5 rounds. Thus, a learning environment is created by cooperating. The game period is set as one lesson hour (45 minutes) and completed under the control of the referee.

Observation

During the game, the students were observed by the researchers. The environment in which the observation took place was physically a classroom environment. As a result of the observation, it was understood that the game supports the social communication skills among the students and helps in providing scientific language skills. Besides, photographs were taken of how the groups played the game. Examples of some organic compounds written with OrgChemGame are given in Figure 2.

![Figure 2. Compound examples written with OrgChemGame](image)

Opinion Form

In the study, students' opinions were also needed in addition to playing the game to learn the subject. The opinions of the students were taken into consideration the pedagogical aspect of the game, that is, in the context of using the existing materials in the teaching of a subject in the best way and managing the process in a good way.

The opinions of the students about the game were taken with the opinion form prepared by the researchers. In this form, there are 8 open-ended questions about the dimensions and colors of the balls and cubes used in the game, regarding the readability of the texts, the duration of the game, the least number of people to play and the opinions of the students about the requested additions to the game in the form. The research is limited to the readiness of the volunteer students on the subject, the opinion form used in the development of the game and the answers given to the form.

Data Analysis

The students' names were reserved and coded as “S₁, S₂… Sₙ”, and the data obtained from the answers were analyzed by content analysis. Content analysis is carried out in order to reach the concepts and relations to explain the collected data. Content analysis is important in terms of ensuring similar data organized within the framework of certain concepts and themes and facilitates understanding of data by readers (Yıldırım & Şimşek, 2011). “Reliability=\frac{\text{Agreement}}{\text{Agreement}+\text{Disagreement}}\times100\%” formula given by Miles and Huberman (1994) was used to calculate the consensus and disagreement and the reliability of the research between the coders. Consensus and disagreement of two independent coders were compared and the average reliability of the codes was found 87%.
FINDINGS

The frequency distribution of the students’ answers to the question “Are the sizes of the balls used in the game appropriate?” is shown in Table 1.

Table 1. Students’ views on the size of the balls used in the game

<table>
<thead>
<tr>
<th>Code</th>
<th>Student number</th>
<th>Frequency (f)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appropriate</td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>All of the texts can be seen.</td>
<td>S2, S6, S10, S11, S12, S13, S14, S16, S20</td>
<td>9</td>
</tr>
<tr>
<td>Easily pulled out of the bag</td>
<td>S2, S3, S11, S14, S15</td>
<td>5</td>
</tr>
<tr>
<td>Easy to carry</td>
<td>S17, S20</td>
<td>2</td>
</tr>
<tr>
<td>Takes up little space</td>
<td>S7, S15</td>
<td>2</td>
</tr>
<tr>
<td>Easily mixed</td>
<td>S19</td>
<td>1</td>
</tr>
<tr>
<td>Inappropriate</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Their sizes are small, should be bigger</td>
<td>S1, S9, S10, S18</td>
<td>3</td>
</tr>
<tr>
<td>Its mass should be slightly increased</td>
<td>S1, S8, S18</td>
<td>3</td>
</tr>
<tr>
<td>It’s difficult to find when it falls down to the floor</td>
<td>S4</td>
<td>1</td>
</tr>
</tbody>
</table>

Students generally stated that the size of the balls appropriate. However, some students also recommend increasing the text size to see the entire article more clearly. Direct citations from the answers given by the students are as follows;

“Easy to hold, takes up little space, the texts fit on it” (S15)

“Larger balls can be used to make some compound names appear as a whole.” (S18)

The frequency distribution of the students’ answers to the question “Are the colors of the balls used in the game appropriate?” is shown in Table 2.

Table 2. Students’ views on the color of the balls used in the game

<table>
<thead>
<tr>
<th>Code</th>
<th>Student number</th>
<th>Frequency (f)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appropriate</td>
<td></td>
<td>16</td>
</tr>
<tr>
<td>White color makes it easier to see text</td>
<td>S1, S2, S3, S5, S6, S12, S13, S16, S17, S18</td>
<td>11</td>
</tr>
<tr>
<td>Black font on white base draws attention.</td>
<td>S2, S3, S4, S5, S6, S12, S13, S14, S18</td>
<td>9</td>
</tr>
<tr>
<td>Black font is easy to read on white base</td>
<td>S15</td>
<td>1</td>
</tr>
<tr>
<td>Inappropriate</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>There must be different colors to draw attention</td>
<td>S4, S10, S11, S20</td>
<td>4</td>
</tr>
<tr>
<td>Different colors should be used for aromatic and cyclic compounds</td>
<td>S6, S11, S20</td>
<td>3</td>
</tr>
<tr>
<td>Should be compatible with the colors of the cubes</td>
<td>S11</td>
<td>1</td>
</tr>
</tbody>
</table>

Students generally stated that the colors of the balls used in the game were remarkable and visible. Some students suggested that different colors could be used to be remarkable and matching the colors of the cubes used. Direct citations from the answers given by the students are as follows;

“Writing names with a black pen on white draws immediate attention.” (S4)

“The balls were one color. Separate colors could be used for aromatic compounds and for cyclic structures.” (S20)

The frequency distribution of the students’ answers to the question “Are the sizes of the cubes used in the game appropriate?” is shown in Table 3.
Table 3. Students’ views on the sizes of the cubes used in the game

<table>
<thead>
<tr>
<th>Code</th>
<th>Student number</th>
<th>Frequency (f)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appropriate</td>
<td></td>
<td>17</td>
</tr>
<tr>
<td>Writable space is enough</td>
<td>$S_1, S_6, S_7, S_8, S_9, S_{10}, S_{11}, S_{13}, S_{14}, S_{16}, S_{18}, S_{19}$</td>
<td>12</td>
</tr>
<tr>
<td>Easy to handle</td>
<td>$S_2, S_3, S_5, S_{14}$</td>
<td>4</td>
</tr>
<tr>
<td>Easy to carry</td>
<td>$S_9, S_{20}$</td>
<td>2</td>
</tr>
<tr>
<td>Compatible with the size of the ball</td>
<td>$S_{10}, S_{17}$</td>
<td>2</td>
</tr>
<tr>
<td>Inappropriate</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Should be smaller</td>
<td>$S_{12}, S_{15}$</td>
<td>2</td>
</tr>
<tr>
<td>Should be larger</td>
<td>$S_4$</td>
<td>1</td>
</tr>
</tbody>
</table>

Students generally stated that the writable spaces of the cubes were sufficient. Direct citations from the answers given by the students are as follows;

“Compatible with the size of the ball. The cubes are of suitable size in which the names of the long compounds can also be written.” ($S_{10}$)

“The cubes are unnecessarily big. Could have been a little bit smaller.” ($S_{12}$)

The frequency distribution of the students’ answers to the question “Are the colors of the cubes used in the game appropriate?” is shown in Table 4.

Table 4. Students’ opinions about the colors of the cubes used in the game

<table>
<thead>
<tr>
<th>Code</th>
<th>Student number</th>
<th>Frequency (f)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appropriate</td>
<td></td>
<td>17</td>
</tr>
<tr>
<td>Making the game remarkable</td>
<td>$S_1, S_2, S_3, S_5, S_6, S_7, S_8, S_{12}, S_{13}, S_{14}, S_{15}$</td>
<td>13</td>
</tr>
<tr>
<td>Increases desire to play</td>
<td>$S_6, S_{14}, S_{17}, S_{18}$</td>
<td>4</td>
</tr>
<tr>
<td>Does not distract because it is not bright</td>
<td>$S_1, S_3, S_{11}$</td>
<td>3</td>
</tr>
<tr>
<td>Prevents confusion</td>
<td>$S_{10}$</td>
<td>1</td>
</tr>
<tr>
<td>It makes easy to read the texts</td>
<td>$S_{12}$</td>
<td>1</td>
</tr>
<tr>
<td>It makes students focus on the writing</td>
<td>$S_{11}$</td>
<td>1</td>
</tr>
<tr>
<td>Inappropriate</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Should be more different colors</td>
<td>$S_6, S_{16}$</td>
<td>2</td>
</tr>
<tr>
<td>Should be single color</td>
<td>$S_{16}, S_{20}$</td>
<td>2</td>
</tr>
<tr>
<td>Color should be used for each number, substituent, punctuation and compound name</td>
<td>$S_{20}$</td>
<td>1</td>
</tr>
</tbody>
</table>

Students generally stated that the use of colorful cubes in the game makes the game remarkable and increases the desire to play. It is noteworthy that a student offers to use of a color for each of the numbers, substitutes, and punctuation and compound names used in nomenclature. Direct citations from the answers given by the students are as follows;

“The color of the cubes makes the game more interesting and fun.” ($S_2$)

“A separate color could be used for numbers, for the main structures, for the substituents, and for the line.” ($S_{20}$)

The frequency distribution of the students’ answers to the question “Are the readability of the texts used in the game appropriate?” is shown in Table 5.
Table 5. Students’ opinions on the readability of the texts used in the game

<table>
<thead>
<tr>
<th>Code</th>
<th>Student number</th>
<th>Frequency (f)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appropriate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Text sizes is easily readable.</td>
<td>S₁₁, S₁₂, S₁₃, S₁₄, S₁₅, S₁₆, S₁₇, S₂₀</td>
<td>15</td>
</tr>
<tr>
<td>Black font on white base on balls is easily readable.</td>
<td>S₁, S₁₅</td>
<td>2</td>
</tr>
<tr>
<td>Inappropriate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Text sizes should be large.</td>
<td>S₄, S₅</td>
<td>2</td>
</tr>
<tr>
<td>Text sizes should be small.</td>
<td>S₈, S₁₉</td>
<td>2</td>
</tr>
<tr>
<td>Texts should be printed or computer printout.</td>
<td>S₁, S₉</td>
<td>2</td>
</tr>
</tbody>
</table>

Students generally stated that the text sizes on the balls and cubes used in the game were readable. Direct citations from the answers given by the students are as follows;

“Texts on balls are clear and understandable” (S₁₇)

“Texts can be computer printout” (S₆)

The frequency distribution of the students’ answers to the question “Should a period be given for the game?” is shown in Table 6.

Table 6. Students’ opinions about the period of the game

<table>
<thead>
<tr>
<th>Code</th>
<th>Student number</th>
<th>Frequency (f)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td></td>
<td>17</td>
</tr>
<tr>
<td>Will be boring if indefinite</td>
<td>S₁, S₂, S₃, S₄, S₅, S₆, S₇, S₁₀, S₁₁, S₁₄, S₁₆, S₁₇, S₂₀</td>
<td>11</td>
</tr>
<tr>
<td>Periodical game will be more fun</td>
<td>S₂, S₃, S₅, S₁₄, S₂₀</td>
<td>5</td>
</tr>
<tr>
<td>The period provides competition</td>
<td>S₁₃, S₁₈, S₁₉</td>
<td>3</td>
</tr>
<tr>
<td>It should be periodical but the individual should determine it.</td>
<td>S₁₉</td>
<td>1</td>
</tr>
<tr>
<td>If it is periodical, the game will be taken seriously</td>
<td>S₁₆</td>
<td>1</td>
</tr>
<tr>
<td>Duration makes the student fast</td>
<td>S₁₁</td>
<td>1</td>
</tr>
<tr>
<td>Should be periodical and period can be extended for reinforcement</td>
<td>S₁₂</td>
<td>1</td>
</tr>
<tr>
<td>45 minutes</td>
<td>S₂, S₄, S₆, S₇, S₁₄, S₂₀</td>
<td>7</td>
</tr>
<tr>
<td>30 minutes</td>
<td>S₁₁, S₁₆</td>
<td>2</td>
</tr>
<tr>
<td>1 hour</td>
<td>S₁₃, S₁₅</td>
<td>2</td>
</tr>
<tr>
<td>2 hours</td>
<td>S₁₂</td>
<td>1</td>
</tr>
<tr>
<td>No</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>There should be no time limit</td>
<td>S₁, S₉</td>
<td>2</td>
</tr>
<tr>
<td>Teaching should not be limited to a period of time</td>
<td>S₁</td>
<td>1</td>
</tr>
<tr>
<td>Duration reduces attention</td>
<td>S₁₇</td>
<td>1</td>
</tr>
<tr>
<td>Hurrying prevents learning</td>
<td>S₁₇</td>
<td>1</td>
</tr>
<tr>
<td>Each individual should determine themselves.</td>
<td>S₉</td>
<td>1</td>
</tr>
</tbody>
</table>

Students generally suggest that the game should be periodical and it should take 45 minutes or more. Direct citations from the answers given by the students are as follows;

“It can be boring if indefinite. ” (S₄)

“Students are constantly competing over time and the game should not be restricted.” (S₁)

The frequency distribution of the students’ answers to the question “How many people at least should play the game?” is shown in Table 7.
Students generally stated that it should be played with two people. Direct citations from the answers given by the students are as follows:

“Two people because not everyone is active in the game when there are too many.” (S\textsubscript{5})

“I think there will be confusion if there are more than two people.” (S\textsubscript{15})

The frequency distribution of the students’ answers to the questions “Do you think the name of the game is appropriate? Do you have any suggestions to include?” is shown in Table 8.

<table>
<thead>
<tr>
<th>Code</th>
<th>Student number</th>
<th>Frequency (f)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The name of the game is appropriate as it reflects the content</td>
<td>All students</td>
<td>20</td>
</tr>
<tr>
<td>Sufficient for teaching the subject</td>
<td>All students</td>
<td>20</td>
</tr>
<tr>
<td>Inorganic compounds can be added</td>
<td>S\textsubscript{12}, S\textsubscript{16}, S\textsubscript{20}</td>
<td>3</td>
</tr>
</tbody>
</table>

All of the students stated that they found the name of the game appropriate and the content sufficient. Some students suggested that inorganic compounds could also be added. Direct citations from the answers given by the students are as follows;

“In my opinion the game is sufficient for the organic lecture at the university.” (S\textsubscript{8})

“I wouldn’t make any addition.” (S\textsubscript{13})

“I would add the nomenclature of inorganic compounds to this game” (S\textsubscript{20})

**CONCLUSION, DISCUSSION AND RECOMMENDATIONS**

In this study, it was aimed to develop a game that can be played in Organic Chemistry courses in order to teach the names of commonly used organic compounds with cyclic and aromatic structures. Summarizing the opinions obtained at the end of the game students generally stated that the size of the balls appropriate, the colors of the balls used in the game were remarkable and visible, the writable spaces of the cubes were sufficient, the use of colorful cubes in the game makes the game remarkable and increases the desire to play, the text sizes on the balls and cubes used in the game were readable, the game should be periodical, and it should take 45 minutes or more, it should be played with two people. And, all of the students stated that they found the name of the game appropriate and the content sufficient. As a result of all these positive opinions, OrgChemGame has been designed as an educational game having a purpose and rules. It aims to acquire target behaviors and appropriate to the level of the students, allowing the students to learn with fun, and having sufficient duration and comprehensibility.

While the educational activities carried out with fun affects the students’ learning and teaching process positively, they enrich the process not only for entertainment but also to support academic
content learning (Barab & Dede, 2007; Miller, Chang, Wang, Beier & Klisch, 2011). In this context, OrgChemGame is a game that can be used in teaching and reinforcing the nomenclature of cyclic and aromatic compounds commonly used within the scope of organic lesson and it is thought that it can make the students participate actively in the course. The games should be given a name and that the chosen name should be kept in their mind and make them feel excited (Özbal, 2009). The name OrgChemGame given to this game was liked by the students and called their attention.

When designing an educational game, how much information the students will learn in which environment, their interactions with other learners, the role of the teacher and the students in the learning process, the materials required for the game, the time needed for the game, the content levels of the students, their interests, age and whether they are appropriate for the subject to be taught in the classroom should be considered. Educational games should complete the work done in the classroom (Özbal, 2009; Ocak, 2013). When these properties were taken into consideration, it was determined that the dimensions and colors of the ball and cube materials used in OrgChemGame were appropriate and the texts used were readable. The duration of the game was set as 45 minutes. As a matter of fact, it was seen that most of the students who participated in the research stated that the indefinite game would be boring but it would be more fun by providing competition when it was within a limited time. The game is played with at least 2 players, and one referee determines the winner of the game. The students stated that if the number of players is more than 2, the players will not be active and this will cause confusion in the game and thus, it will prevent learning. Students stated that OrgChemGame is sufficient in terms of content and some students suggested that inorganic structured compounds can be added.

In line with the findings obtained from the research, it is suggested that similarly, educational games that include organic chemistry subjects that students have difficulty can be developed. In addition, it is recommended to include the students who are ready on the subject in the educational games to be developed in accordance with the relevant subject area, and to include their opinions. It can be stated that this will contribute to the students’ pedagogical content knowledge.

Since the playing of the game is limited to the tables in the classroom environment, some balls rolled off the table and fell on the floor during the game. In future research, to prevent this, a platform on which the selected balls can be fixed or game boards on which balls and cubes can be easily sorted can be used.

REFERENCES


An Inquiry on the Third Mission of Universities: The Measurement of Universities’ Contribution to the Social, Cultural and Economic Development of a City

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Abstract

“Development” is a kind of growth that leads to the transformation of social and official organisms including innovation in cultural values, worldview, and consumption and behaviour patterns. Accordingly, development is a living organism as indicated by developments in many fields such as economics, science, art, sports, education, democracy, and freedom to improve prosperity. Since development begins with innovation in human resources and national development processes depends on regional and urban development, education, and educational institutes can be accepted as one of the initiatives and accelerative factors of development. Therefore, the role of city universities is important in the development of cities and countries. The purpose of this study is to determine the contribution of four major universities in Ankara to the social, cultural, and economic development of the city. The data were collected by a structured questionnaire, which was developed by the researchers to be used in interviewing with vice rectors of these four universities. Three of those vice rectors are from state universities, and one of them is from a private university. The qualitative data were analyzed by descriptive analysis. On the basis of results, it is concluded that universities in Ankara play their “third mission” by contributing to the development of their surroundings.

Keywords: City and the University, Social Development of a City, Cultural Development of a City, Economic Development of a City, Universities’ Contribution to a City

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INTRODUCTION

All over the world, universities contribute to the development of scientific knowledge through scientific researches they conduct, and to the development level of their societies through their practices serving society. In the scope of universities’ practices serving the society, it is important to train a workforce tailored according to society’s needs; to share new scientific knowledge with industrial, agriculture, and service sectors; to conduct studies for protecting society’s history and traditional culture, and to support state and private organizations through in-service training practices. So, it is important that universities should be in interaction with the city they are located in regarding their contributions to regional development. Arslan (2005) argues that regional development is one of the economic growths and development targets of all countries. The core principle to achieve this target is to use the country’s existing resources and potentials in the most efficient way.

The third mission of universities’ concept refers to an additional function of the universities in the context of the knowledge society. The university is not only responsible for qualifying the human capital (Education—the first mission) and for producing new knowledge (Research—the second mission). Universities must engage with societal needs and market demands by linking the university’s activity with its own socio-economic context (Pinto, Cruz, & de Almeida, 2016). Çetin (2007) emphasizes that universities are among the essential dynamics of regional development and notes that the university is not only a research centre where undergraduate and post-graduate education is also provided but also a place where studies for the benefit of the local community are conducted. Universities are important to the people of the cities they are located in, in terms of acquiring information and education and availing of employment opportunities and social services. Since the 1960s, universities have been regarded to be an instrument for regional development in several European countries and they have increased their numbers in underdeveloped regions. Chatterton (2000) states that universities’ contribution to the cities they are located in is a concept that can be tackled comprehensively. This concept covers a measurable contribution to the economy and employment, as well as a contribution to the social and cultural life in the city. Among these, while it is possible to measure contributions such as the number of students who graduated from art departments and the public’s participation rate in the cultural events, it is difficult to measure contributions such as awakening creativity in people’s minds and introducing a new point of views. A university’s contributions to the related city might vary according to the institutional history and culture of the university, student profiles of the faculties, the region the university is located in, and the university’s being a state or foundation university. Thus Gültekin, Çelik, and Nas (2008) state that it is possible, to sum up, universities’ contributions in the following items:

1. Ensuring improvement in economic variables such as regional income and employment,
2. Ensuring improvement in socio-cultural variables such as healthcare, communication, transport and an increase in the prosperity level,
3. Ensuring improvement in demographic and education variables such as an increase in the participation level in education and a decrease in immigration.

Universities can only function properly and gain society’s support through their contributions to the society in economic and social terms with the approval and support of the society they are serving (Torun, Öztürk, & Gelibolu, 2009). In this context, in the present study universities’ contributions to the related city are examined in terms of social, cultural, and economic aspects.

The 12th Clause of the Turkish Higher Education Law (1981) requires that:
“... universities are obliged to conduct researches that will lead to the scientific, cultural, social and economic development of the country; to reveal the results of the researches for the benefit of the society; to contribute to training professionals suitable for the development of agriculture and industry and the needs of the same; to conduct and implement studies and programs that will allow an increase in the production and modernization in industry, agriculture and healthcare services as well as other services...”

When we look at the previous studies of native and foreign origin in the literature on the universities’ contributions to the city or region, we see that although there are studies that dwell on the economic contributions of Turkish universities to the related region, province, or district, the number of studies that dwell on the social and cultural contributions of universities are few. One of the first studies in this context in Turkey was conducted by Karadeniz Technical University. In this study, Beyazlı, Aydemir, and Aydemir (2005) examine the direct and indirect economic contributions of Karadeniz Technical University (1955), one of the first universities to be established out of Istanbul and Ankara provinces, to Trabzon and its neighbourhoods. In another study, the relations of Karadeniz Technical University with the business world in the city and the region are examined and the university’s significant role in this regard is emphasized.

Another study investigating universities’ role in urban development was conducted by Uludağ University. In the study “Uludağ University and Bursa”, universities’ roles in the regional development and contributions to urban development are handled with a general approach (Özyaba, 1999). Gürgan and Karataş (2004) examined Muğla University’s roles in the city’s socio-economic development. The first study that examines the universities’ contributions in Turkey on the book level was conducted by Sargın (2006). In this study, general approaches in urbanization movements in Turkey and universities’ development processes are investigated. In the book, especially Süleyman Demirel University’s effects on the population, urban functions, and economic structure of the related city are emphasized. Approaches in this subject are based on findings gathered from field researches.

In a project study on Anadolu University’s interaction with the city it is located in (Eskişehir), Sürmeli, (2008) examined what the university did for the city and what it could and should do further. It has been stated that Anadolu University is the most contributing university in Turkey to the city it is located in. It makes contributions to society in the frame of university-industry collaboration and through practices serving society. In addition to the aforementioned functions, the University also offers many opportunities (such as facilities on the campus and in the city) and culture-art events to the region and the city.

When we look at the international literature in this regard, we see that a great number of studies have been conducted on the effects of universities on regional development. In these studies (Becker, 2003; Charles, 2003; Varga, 2003; Sutz, 2005; Wolfe, 2005; Nilsson, 2006; Badat, 2009; Bonander, et. al., 2016; Secundo, et. al., 2017; Agasisti, & Bertoletti, 2020; Olo, Correia, & Rego, 2020), it is noted that universities contribute to the cities they are located on a wide social and cultural spectrum and that universities’ activities penetrate in all aspects of daily life. Besides, in their comprehensive systematic literature review (through examination of 134 peer-reviewed articles which were published between 2004 and May 2019) on the third mission of the universities labelled as a “contribution to society”, Compagnucci and Spigarelli (2020) state that the academy meets the transparency, efficiency and accountability demands for the socio-economic impact of their activities. In addition, they emphasized that the universities are now necessary to illustrate legitimacy to external stakeholders, including industry and society. They also state that the production and dissemination of the university and knowledge are currently at a crossroad.

Bologna Process started in 1999 and aimed to create the “European Higher Education Area” until 2010, maintaining the national system in the meantime, tried to establish links between systems of different nations. In their trends reports, the European University Association (EUA), one of the essential actors of the Process, summarizes the studies conducted in Europe on the development of
higher education in accordance with Bologna objectives. In the fifth report submitted in 2007 by Crosier, Purser, and Smidt, it is emphasized that outputs of the Bologna Process are not shared with the social partners sufficiently. At this point, it is proposed that one of the reasons for not interiorizing the Bologna Process is the universities’ isolation from employer organizations and society. In the strategies for this new configuration in Europe, higher education institutions’ interactions with society are highlighted. When this interaction is considered on a regional basis, it is understood that university-city relations should be examined.

In line with the above-mentioned requirement, the present study was conducted to determine the contributions of four universities in Ankara province, the capital of Turkey, to the development of the city in social, cultural, and economic aspects based on the views of vice rectors of these universities. Ankara is different from other cities in Turkey due to some singularities of it. Ankara’s history dates back to the 7th century BC. The present settlement area of Ankara has been house by Hittites, Phrygians, Galatians, Seljuks, and Ottomans, who left significant historical works behind. Especially the Old Ankara is an important settlement area where historical structures rest. Ankara has been the capital of Turkey since the foundation of the Turkish Republic. Conducting Turkish Salvation War from Ankara, Mustafa Kemal Ataturk declared that city, which supported him on the worst days of the war, as the capital of the country on 13 October 1923. Besides, all state organizations and institutions that play a role in the governing process of Turkey are in Ankara. That Mustafa Kemal Ataturk, the founder of the Turkish Republic and the essential leader of the Turkish People, rests in Ankara in his tomb -Anıtkabir- makes the city more important.

Besides, among the universities which constituted the sample of the study, especially Ankara University, and Gazi University date back to almost over a century ago and these universities have been serving Ankara since their establishment. Another university that falls in the scope of the study is Hacettepe University. One section of the campus of this university located in the city falls in the remit of the extension of the Old Ankara city. The fourth university is Başkent University which was established in recent years as a private university. It makes valuable contributions to the city both through their investments in the city and the neighbourhood and through their broadcasts on their own equipped television channel. Therefore, we believe that data collected from these universities will reveal crucial and interesting results.

METHOD

Research Model and Participants

This is a qualitative research that has been carried out via a qualitative interview technique and conducted on the opinions of vice rectors of four major universities in Ankara as to the contribution of their universities to the city. Three of these authorities are from state universities (Ankara University, Gazi University, and Hacettepe University) and one of them is from a private university (Başkent University).

Data Collection

Within the framework of the research, data was collected through an interview which is defined as “a two-person conversation, initiated by the interviewer for the specific purpose of obtaining research-relevant information, and focused by him/her on content specified by research objectives of systematic description, prediction, or explanation” (Cannell & Kahn, 1968).

Ongena (2010) stated that the systematic character of interviews is generated through structured questionnaires practised in a standardized manner (e.g., read questions as written and probe non-directive, etc.). The standardized interview is described as a conversation with the purpose of collecting valid and reliable data and the main goal of standardization is defined to collect data that is comparable across respondents by keeping the stimuli (i.e., the questions) provided to them constantly.
She sequenced the means of standardization as; a) a questionnaire with a predetermined structure, question order, and question-wording and b) the instructions that interviewers must apply in interviewing. Due to the advantages of a structured questionnaire such as its role in leading the investigator to give all his or her attention to the informant’s testimony and also in leading the interviewer to attend tasks at hand without preemption the “open-ended” nature of the qualitative interview (McCracken, 1988), one that aims to obtain deep views of the university authorized as to the contribution of their universities to Ankara has been devised by the researchers.

The devised questionnaire includes six questions under three aspects. These aspects are 1) “the social contribution of the universities to the city”, 2) “the cultural contributions of the universities to the city”, and 3) “the economic contribution of the universities to the city”.

The first aspect, “the social contribution of the universities”, includes questions to gather information about:

1a) what kind of work the university has performed to reduce the negative impacts of immigration such as;

- playing role in making policies,
- conducting researches contributive to the policies against immigration,
- playing role in planning rural and urban investments,
- taking precautions to obstruct the disruption in urban ministration,
- designing studies to prevent unplanned urbanization and assess infrastructure needs,
- designing educative activities oriented for parents and children,
- putting vocational programs into service (support and contribution to preventing unemployment),
- studying health and hygiene-related issues,
- endeavouring to reduce the disadvantages of immigration such as unfamiliarity with the city culture,
- intercultural conflict and discrepancy or taking precautions to prevent an increase in traffic problems and crime rates that are involved as a result of population growth due to immigration.

1b) what kind of work the university has performed regarding the development of basic living skills and lifelong learning activities of the public such as;

- contribution to the development of social policies,
- making individuals gain the habit of effective use of leisure time,
- instituting training programs on children education,
- disseminating vocational courses,
- instituting literacy courses,
• conducting studies oriented towards disabled,
• conducting studies to struggle against smoking, alcoholism, and drug addiction,
• developing strategies to overcome domestic abuse and social violence,

1c) what kind of work the university has performed regarding the improvement of the natural environment of Ankara such as;

• prevention of environmental (water, air, and soil) pollution,
• recycling of wastes,
• setting parks and gardens,
• planting trees and flowers,
• environment monitoring for avenues and streets,
• raising public awareness of environmental issues.

In the second aspect “the cultural contribution of the universities” we try to find out;

2a) what kind of work the university has performed regarding the protection of historical texture and places in Ankara such as;

• conducting studies and releasing publications for the history of pre-republic and republic periods,
• raising public awareness via informative activities to introduce, protect and transfer historical heritage,
• dissemination of tourism,
• protection of extinct crafts,
• protection of the historical structures in danger of vanishing due to unplanned urbanization,
• support and contribution to the restoration,

2b) what kind of work the university has performed regarding the cultural and artistic development of Ankara such as;

• maintaining and disseminating museums,
• maintaining extinct vocations,
• disseminating social activities such as cinema, theatre, etc.,
• increasing interest in arts of sculpture, painting, music, etc.,
• disseminating sports habits and facilities,
increasing public attendance to cultural and art activities,
raising public awareness of issues related to maintaining and transferring cultural properties.

Finally, “the economic contribution of the universities” aspect questions

3a) what kind of work the university has performed for the economic development of Ankara in agricultural, industrial, and service sectors such as;

- labour training,
- informing commerce sectors about new technologies,
- inviting sectors to scientific activities such as congress, symposium, panel, etc.,
- in-service training,
- consultancy services,
- designing joint projects with industrial and commercial plants in the city.

All the questions in the survey are open-ended. The vice rectors also declared whether they consider the performed work sufficient or not, whether they are supported or strike a snag in their effort, and what kind of works they have planned to do in the future.

The questionnaire was presented to an expert group, which included three experts, one of whom was a linguist and two experienced in educational measurement and evaluation courses. These experts have been consulted regarding the expediency, clarity and understandability of the questionnaire items. In line with the mentioned expert opinions, necessary corrections and changes have been made to get the questionnaire ready to be applied. The researchers implemented the eventual questionnaire in a single interview session between August and September. Based on the techniques of standardized interviewing summarized by Fowler and Mangione (1989), the process has been carried out with the phases of a) reading the questions, b) probing without hinting directives after inadequate answers, c) recording answers by using a tape recorder without judgment, and d) being interpersonally non-judgmental regarding the substance of answers.

There is no doubt that no matter what method or technique is used in the process of collecting data, several types of measurement error can occur. As defined by Ongena (2010); such errors might cause the respondent to answer questions inaccurately or imprecisely, or to answer a question with a different meaning than intended by the researcher. Sudman and Bradburn (1974) denoted that these errors may be related to the method of data collection, the measurement instrument, the manner of the interviewer or respondent characteristics. Many researchers (Schwartz & Schwartz, 1955; Cassell, 1977; Reeves-Sanday, 1979; Guba & Lincoln, 1992) agree within the scope of qualitative research that the investigator serves as a kind of “instrument” in the collection and analysis of data. To serve as a valid and reliable instrument, the interviewer must obey some rules to reach the qualitative research objectives. Correspondingly, in consideration of the necessity of drawing out the respondent in precisely the right manner to gain the entire success of the enterprise (Brenner, 1982), it was endeavoured not to violate the law of unobtrusive and nondirective manner in testimony during the interviewing process.

Data Analysis

In the study, the recorded responses given to the open-ended questions in the questionnaire have initially been decoded and then descriptively analyzed. Descriptive analysis is a technique in
which direct quotations from the responses are given to reflect the investigated content. The objective of descriptive analysis is to present the obtained findings to the reader in an organized and interpreted manner. To achieve this goal, the data is clearly and systematically described. Then, the descriptions are revealed, interpreted and finally, corresponding results are attained (Yıldırım & Şimşek, 2018). In this study, the content of the vice rectors’ views is presented and interpreted by either summarizing their opinions on survey variables or giving direct quotations.

**FINDINGS**

The findings that have been acquired through qualitative analysis of the answers given by the university authorities to the questions included in the questionnaire are indicated below in terms of universities’ contributions to Ankara Province in social, cultural and economic aspects respectively.

**The Social Contribution of the Universities to the City.** In this concept, there are three questions to gather information about what kind of work the universities have performed. The aim of the first question in this concept is to determine to what extent the universities have been effective in diminishing the negative effects of immigration to Ankara which has been under an intense flow of migration especially as of the 1950s. The primary studies to be conducted by universities to eliminate the negative effects of immigration are to make policies focusing on this problem, to help in implementing such policies or to conduct research that would facilitate the production of such policies. Concerning universities’ roles in making policies and conducting researches contributive to the policies against immigration; it is determined that universities do not play a functional role in making policies in this regard, but they do contribute to the process via their studies on academic and social services grounds. For instance, focusing on the demographic transformation process of Turkey in the last 40 years, Hacettepe University, Institute of Population Studies have been conducted various studies on fertility and reproductive health; ageing; family planning; mother-child care; immigration and expatriated population and domestic violence against women.

Another potential study on the negative impacts of immigration is to commence vocational courses to prevent unemployment. When universities’ contributions in this regard are investigated, it was found that vocational courses have been arranged as well as the ones aiming to improve one’s existing profession, at the end of which the attendants received related certificates. It was also found that over one hundred thousand Ankara citizens availed themselves of that opportunity.

It is probably the studies on healthcare through which universities will contribute most to diminish the negative impacts of immigration. Concerning studying health and hygiene-related issues; it was determined that universities ensured the conduct of medical screening on family planning, dental health and physical and mental health etc. especially in slummy areas and contributed to raising public’s awareness about healthcare through booklets and brochures. Some of the aforementioned studies and practices aiming to eliminate the negative impacts of immigration were performed on the basis of voluntary projects and some of them are being carried out with the support of and/or in collaboration with The Scientific and Technological Research Council of Turkey (TUBITAK); State Planning Organization (SPO); European Union and European Development Agency; Support Program for Public Institutions’ Research and Development Projects (KAMAG); Ministry of Health, General Directorate of Mother and Child Care and Family Planning; and Prime Ministry, Undersecretariat of State Planning Organization.

In the concept of playing role in planning rural and urban investments, taking precautions to obstruct the disruption in urban administration, designing studies to prevent unplanned urbanization and assess infrastructure needs, designing parent-child-oriented informative activities, endeavouring to mitigate the disadvantages of immigration such as unfamiliarity with the city culture, intercultural conflicts and discrepancy or taking precautions to prevent an increase in traffic problems and crime rates that are involved as a result of population growth due to immigration; it is noted that universities do not consider their work sufficient and intended to conduct further studies focusing on these
subjects. None the less, research data also showed that universities agreed on the ground that immigration is an element that is promoted with political objectives and that studies and practices focusing on the solutions for this problem can only be promoted with the incentive of politicians again.

With the second question under the scope of universities’ contribution to Ankara on a social basis, we tried to determine what studies the universities conducted in terms of the development of basic living skills and lifelong learning activities of the public. Data showed that “lifelong learning”, which includes all learning activities that are continuing throughout a life span to increase one’s knowledge and improve skills and abilities, is accepted as an essential element of a modern education system by universities and contributing to such activities is considered to be as crucial as providing associate degree, undergraduate and postgraduate education programs.

One aspect contributing to the acquisition of basic living skills and lifelong learning activities is to carry out vocational courses. In the concept of disseminating vocational courses; it was found that universities arranged vocational courses as well as the ones aiming to improve the existing profession at the end of which the attendants received relevant certificates. These courses were free of charge and universities encouraged the public to avail themselves of that opportunity. Moreover, it was determined that universities carried out activities contributive to lifelong learning via private television channels. These activities include applied studies such as graphics, painting and interior architecture for people who are fond of art, especially plastic arts as well as broadcasts on beauty, esthetics, health, fashion, arts, culture and education for women audience. Data also showed that another contribution of universities to the development of basic living skills and lifelong learning activities is in the concept of instituting training programs on children education and conducting disabled-oriented studies. It was determined that universities conducted researches focusing on these subjects through faculties of education and medical sciences and that these researches were backed up through scientific meetings such as conferences, seminars, workshops etc.

One of the most important contributions by universities to lifelong learning activities is to develop strategies to overcome domestic abuse and social violence. Research data revealed that lack of data on violence against women on a national level poses an obstruct for universities to develop policies, strategies and programs in this regard and that the very problem functions as a stimulus for universities to conduct various studies in this context. One of these studies is “Study on Domestic Violence against Women in Turkey” which concludes that informative programs should be developed and implemented to raise the public’s awareness for the prevention of this violence. The importance of this study is summarized as such by a university authority:

“... “Study on Domestic Violence against Women in Turkey” is the most extensive study with the largest sample ever conducted in Turkey and worldwide in this context. ...”

Besides, social projects carried out by universities in collaboration with Ankara Prison Execution Organizations are among activities focusing on mitigating social violence. The aforementioned studies and activities aiming to develop basic living skills and lifelong learning activities are being carried out with the support of and in collaboration with Society-Supported Police Organization; Ankara Prison Execution Organizations; Prime Ministry, General Directorate of the Status of Women (KSGM); Turkish Statistical Institute (TurkStat), Province Governors; Directorates of Social Services and Children Protection Institution and Directorates of Healthcare.

In the concept of contribution to the development of social policies, leading individuals to gain an understanding of effective use of leisure time, instituting literacy courses, conducting studies to struggle against smoking, alcoholism and drug addiction; it is noted that universities do not consider their work sufficient and intend to conduct further studies focusing on these subjects.
The third and last question under the scope of universities’ social contributions aims to determine what kind of studies have been conducted by universities in terms of the improvement of the natural environment in Ankara. Given that, in today’s world, the level of development of a city is determined by the clean and livable environment it has, it can be concluded that one of the most important contributions of universities to the city in which they are located in their care for the environment and the measures they take to protect it as well as raising public’s awareness in this regard.

In the concept of prevention of environmental (water, air and soil) pollution, and raising the public’s awareness of environmental issues; University authorities state that the most remarkable contribution to Ankara has been realized through the “Green Generation” project which has a deep-rooted history and played a key role in the prevention of water pollution by controlling the major barrages (Emirdağ and Çubuk I), Ankara’s potable water supply sources. Additionally, it is determined that studies are conducted in this context by departments of environmental engineering and biology. University authorities state that they continue to contribute to environment protection via private television channels and prepare joint television programs in collaboration with various environmental organizations. A university authority states the following about studies in this context:

“... In the scope of struggling against soil erosion, our university is preparing joint television programs in coordination with a reputable environment organization, The Turkish Foundation for Combating Soil Erosion, for Reforestation and the Protection of Natural Habitats (TEMA). These programs aim to prevent environmental pollution and to raise the public’s awareness of environmental problems. ...”

Moreover, the universities have commenced using energy-saving solar panels to encourage and promote the use of natural energy resources is one of the big-leaps towards the improvement of the natural environment. Research data show that another contribution of universities to the improvement of the natural environment is in the concept of planting trees and flowers. University authorities state that, through the joint projects implemented in coordination with students and environmental organizations, they organize tree-planting fests every year. A university authority explains the situation as such:

“... Approximately eight million trees have been planted on our campus. If these activities are sustained, our campus will be one of Ankara’s lungs in the next decade. ...”

The aforementioned activities for the improvement of the natural environment are carried out with the support of and in collaboration with TEMA and Ankara Development Agency. In the concept of recycling of wastes, setting parks and gardens, environmental checks for avenues and streets; it is noted that universities do not consider their work sufficient and intend to conduct further studies.

The Cultural Contribution of the Universities to the City. In this concept, there are two questions trying to find out what kind of work the universities have performed. With the first question, there came out studies and activities focusing on the protection of historical texture and places in the city. The common ground on which universities meet in this context is that universities should be the pioneering institutions in the protection of historical texture and places of the city.

One aspect of the activities for the protection of historical texture and places is the dissemination of tourism. Universities consider that domestic tourism should be primarily promoted and supported rather than international tourism. That the activities universities undertake for domestic tourism cannot go beyond small-scale activities appears to be a problem. Another aspect of cultural tourism is about activities promoting national and local languages. In this context, it is determined that the most important contribution to cultural tourism is achieved through universities’ language teaching centres which are considered to be an element that introduces and promote the national and local culture and languages in Turkey and realize cultural shifts. One of the most notable of these centres is
Ankara University, Turkish Teaching Center (TÖMER). The interviewed authority states the following about TÖMER:

“... TÖMER prepared the ground for these long years ago and achieved great success. There are several reasons for that; first, it makes our culture known, second, it promotes our language and third, it prepares for cultural shifts. ...”

The protection of historical texture and places, as well as the handcrafts that are about to go extinct, is another contribution of universities to the city they are located in. Universities support the activities carried out by Ankara Province, Inventory Preparation Commission for Intangible Cultural Heritage and also carry out activities via books, exhibitions and television programs. The program “Anatolian Peninsula” that has been broadcasted on universities’ own private television channels is an example of these activities. In the program, they broadcasted documentaries on the heritage of 10-thousand-year-old civilizations such as artworks, life culture, traditions and customs, traditional handcrafts and local handicrafts, all about to go extinct. Museum projects to exhibit Ankara’s cultural texture in the frame of a collaboration between municipalities and universities can be counted among contributions in this regard.

Protection of historical structures that are in danger of becoming extinct due to unplanned urbanization and support for restoration works are among contributions to the protection of historical texture and places. For instance, universities assigned representatives to work in foundations such as Preservation Committee and these representatives carried out the restoration of several statues and structures (dated back to foundation years of the Turkish Republic) in the city. Another example of these activities is the restoration of “Traditional Ankara Houses” and putting these houses into service as houses of art, workshops and exhibition halls.

In two essential points, universities consider their contribution to Ankara in terms of protection of historical texture and places insufficient: One is to conduct studies and release publications on the history of pre-republic and republic periods; and the other is raising public’s awareness via informative activities in terms of introducing, protecting and transferring historical heritage. The reason for this insufficiency in this area is explained as such by a university authority:

“...Statesmen need to be good observers to ensure the protection of historical texture and places. It can only be possible by investigating not only the existing but also the pre-existing; absorbing society’s values and examining the road maps of countries that arrived at the same point earlier than you...”

University authorities also emphasize the insufficient financial sources to pose a major obstruction on the way of studies concerning the protection of historical texture and places in Ankara.

The second question under the scope of universities’ cultural contribution to Ankara aims to determine what kind of studies conducted for the development of culture and arts in the city. One of the potential studies to be conducted in this regard is the protection and dissemination of museums. Several activities show that universities support the development of the city in this context. Such activities include the opening of the Museum of Architect Kemaleddin, one of the first architects of the Republic Period, and also an example of Atatürk’s house in Istanbul was built on the university campus and turned to be a museum.

Universities try to contribute to the development of culture and arts in the city through activities such as increasing cinema and theatre occasions and attracting more attention to fine arts such as sculpture, painting, music, etc. It is determined that a great majority of these contributions are achieved by organizations established by university students. These activities include concerts by Turkish Folk Music and Turkish Classical Music choirs; dramas by theatrical companies and dance show by folk dance organizations. Universities do not consider their activities sufficient in terms of...
cultural and artistic development of a city, promotion of practising sport exercises and opportunities for such; raising public’s awareness for the protection and transfer of culture and art assets. Therefore, universities’ plans focus on studies in this context.

The Economic Contribution of the Universities to the City. In this concept, what kind of work the universities have performed regarding the economic development of Ankara in terms of agricultural, industrial and service sectors is questioned. Data show that both universities and their subsidiaries (hospitals, schools, hotels, restaurants, etc.) contribute to the training of the city’s workforce and employment through activities in the fields of healthcare, education, tourism and agriculture.

In the concept of labour training and in-service training; University authorities state that in the departments of economics and business administration, researches are conducted on the postgraduate level. In addition to the existing education provided by associate degree and undergraduate programs, arranging courses aiming to provide profession or improving the existing ones in collaboration with Ankara Municipality is among the contributions of universities in this context. It is stated that over 100 thousand Ankara citizens have availed themselves of this opportunity up to now and that these courses have made a major contribution to the development of a qualified workforce. Additionally, authorities state that in a large number of districts in Ankara, they have facilities for agriculture products, animal husbandry and dairy farming where qualified staff (such as research academicians) and administrative personnel find an opportunity of employment as well as workers. A university authority explains his university’s contributions to training the workforce and providing employment as such:

“... There are already over eight thousand qualified staff working in the university. This is a significant contribution to the economy. Thanks to our university, this area, which was formerly a village, has become a district and the construction sector has boomed in the village. ...”

Similarly, a university’s contribution to training qualified workforce and the establishment of new work areas is explained by another university authority with the following impressing statement:

“... Even building the university structure itself has been a work area for the construction sector. There have been opened restaurants, cafes and stationery shops in the area. Besides, lands in that territory gained value and a large number of houses and sites have been constructed. ...”

It is determined that universities contribute to the economy not only in agriculture, industry and service provision sectors but also in the tourism field through their activities. Universities also have touristic hotels where a remarkable workforce is trained and employed as well as service to Ankara citizens is provided. It is also determined that another contribution of universities to Ankara’s economic development is in the concept of consultancy services and informing commercial plant about new technologies. Universities state that they provide consultancy services through departments such as Gazi University Technology and Permanent Education Centers, Faculty of Engineering, Architecture, Technical and Professional Education and Faculty of Economy and Administrative Sciences. Moreover, there are a great number of faculties who work with and provide consultancy services to industrial organizations.

In the concept of inviting sectors to scientific activities such as congress, symposium, panel etc.; University authorities state that they make their most important contribution by hosting panels and symposiums, even broadcasting the same on their television channels in order to convey such events to larger audiences.
In the concept of designing joint projects with industrial and commercial plant in the city; it is stated that universities implemented joint projects with industrial and commercial organizations in the city such as Ankara Chamber of Trade (ATO), Ankara Chamber of Industry (ASO), Middle East Industry and Trade Center (OSTIM), Ankara Chamber of Merchants and Craftsmen and that they will establish similar industrial and commercial partnerships in the future.

**DISCUSSION, CONCLUSION, AND SUGGESTIONS**

Conclusions based on the results of the study on universities’ contributions to Ankara Province in terms of social, cultural and economic aspects are given below respectively.

**Universities’ Contributions on Social Basis.** Results on the universities’ contributions to Ankara on a social basis show that university authorities primarily emphasize the immigration phenomenon. It is determined that universities do not play a functional role in making policies for diminishing negative impacts of immigration, but they do contribute to the policymaking process via their studies on academic and social services ground. In order to prevent unemployment, one of the negative impacts of immigration, vocational courses have been arranged. So as to eliminate negative results of immigration, universities carried out studies on family planning and physical and mental health, etc. especially in slummy areas and contributed to raising the public’s awareness about healthcare through booklets and brochures. They find their studies insufficient on planning urban and rural investments, preventing unplanned urbanization and assessing infrastructure needs, and designing child-parent-oriented informative activities. They also do not consider their studies sufficient on diminishing disadvantages of immigration such as urban culture, intercultural conflicts and incompliance; and taking measures against problems such as heavy traffic and increase in the crime rates, which are the results of an immigration-linked population increase.

As a second contribution to Ankara on a social basis, universities carry out studies on providing professions in the scope of development of basic living skills and lifelong learning. In addition to that, they conduct activities to contribute to lifelong learning via their broadcasts about painting, interior architecture, beauty, esthetics, healthcare, fashion, arts, culture and education. Another contribution of the universities in this regard is to start child education and childrearing programs and to conduct studies for disabled people. Universities also carry out activities contributive to lifelong learning by conducting studies to eliminate domestic and social violence. Moreover, it is determined that universities do not find their studies sufficient in terms of contributing to developing social policies, creating an understanding of effective use of leisure time for individuals; instituting literacy courses and struggle against smoking, drug addiction and alcoholism.

Similarly, Benneworth and Cunha (2015) have defined social innovation and studied the contributions of universities considering strategic modernization and privatization. In their research, they concluded that university engagement in urban knowledge exchange remains energetic and influenced by universities’ own strategic choices and relationships. They also emphasized the key to viable and feasible college city-regions is guaranteeing colleges are able to produce clear benefits from these information exchange activities with their city-regional partners. Sharma (2015) states that universities are seen as key institutions in social change and development processes. Therefore, he emphasizes that the most important role assigned to them is the production of highly skilled manpower and research outputs to meet perceived goals.

The last but not least contribution of universities to the local community is the implementation of crucial nature projects such as Green Generation aiming to improve Ankara’s natural environment. Moreover, it is determined that universities contributed to the prevention of environmental pollution and raising the public’s awareness of environmental problems by preparing joint television programs with several environmental organizations. Besides, universities’ activities to encourage and promote the use of natural energy resources and tree planting activities they conduct in collaboration with environmental organizations are remarkable practices in terms of improving the natural environment.
Universities do not consider their studies sufficient in terms of recycling wastes; setting parks and gardens; and, conducting environmental checks for streets and avenues.

Based on the results given above, basic recommendations can be presented in the following order:

1. Given that Ankara still lacks an urban plan, priority should be given to studies for preventing unplanned urbanization.

2. Turkey’s young and child population is quite crowded. Especially families who immigrated to Ankara have more children than residents. Parents’ role in helping children with gaining basic living skills is crucial. Therefore, it would be quite appropriate to conduct parent-child-oriented informative training activities.

3. That Ankara is located in a narrow area as a city naturally brings up traffic problems. So, in this context, studies for preventing traffic problem gain importance.

4. Ankara is a city that needs improving in terms of parks and gardens. The view of the city will be more likeable if universities focus on studies in this regard.

Universities’ Contributions on Cultural Basis. Results of the universities’ contributions to Ankara on a cultural basis show that universities have conducted studies and carried out activities for the protection of historical texture and places in the city. It is determined that universities ensure the promotion of cultural tourism, another aspect of these studies, via language teaching centres which are regarded to be an element that introduces local culture and language and realizes cultural shifts. The protection of historical texture and places, as well as the handcrafts that are about to go extinct, is another contribution of universities to the city they are located in. In collaboration with municipalities, universities are carrying out museum projects where Ankara’s cultural texture is exhibited. In addition to that, exhibitions held and broadcasts on television channels by universities can be counted among the contributions in this context. Universities also contribute to the development of culture and arts in the city through activities such as increasing cinema and theatre occasions and attracting more attention to fine arts such as sculpture, painting, music, etc. It is determined that these contributions are mostly achieved by student organizations that include concerts by Turkish Folk Music and Classical Music choirs; dramas by theatrical companies and dance show by folk dance organizations. Moreover, protection of historical structures that are in danger of becoming extinct due to unplanned urbanization and support for restoration works are among contributions to the protection of historical texture and places.

Chatterton (2000) stated that insufficient attention has been paid to universities’ cultural roles. In his field work in Bristol, United Kingdom, he has highlighted a number of cultural roles which universities undertake in the community. He has also shown the diverse set of cultural relationships which exist between universities and communities. In their research, Albulescu and Albulescu (2014) emphasized that the impact of universities upon the development of the communities to which they belong is significant. They also stated that the contribution of the university to local and regional development can also be understood in terms of forming and strengthening formal and informal connections in order to attain social, civic, and cultural objectives.

Results of the study show that in two essential points, universities consider their contribution to Ankara insufficient in terms of protection of historical texture and places: That is raising public’s awareness to this aspect by releasing publications on the history of pre-Republic and Republic periods (informative activities with regard to introducing, protecting and transferring historical heritage). Universities do not consider their activities sufficient in terms of cultural and artistic development of a city, promotion of practicing sport exercises and opportunities for such; raising public’s awareness for
the protection and transfer of culture and art assets. Based on the results given above, basic recommendations can be presented in the following order:

1. Ankara’s history dates back to the 7th century BC. Especially the Old Ankara is an important area where historical structures rest. It would be crucial for universities to enrich this historical heritage by publications and conduct studies to raise awareness of the importance of social history and inform the public.

2. The Old Ankara is a region where professions “soon-to-go-extinct” try to survive. Studies on the protection of traditional culture and art assets and transferring the same to next generations will make great contributions to Ankara Province.

**Universities’ Contributions on Economic Basis.** Results of universities’ contributions to Ankara on an economic basis reveal that both universities and their subsidiaries (hospitals, schools, hotels, restaurants etc.) contribute to the training of the city’s workforce and employment through activities in the fields of healthcare, education, tourism and agriculture. The vocational courses arranged by universities in collaboration with Ankara Municipality proved to be a major contribution of universities for a qualified workforce. Besides, it is determined that universities contribute to the economy not only in agriculture, industry and service provision sectors but also in the tourism field through their activities. It is also found out that another contribution of universities to Ankara’s economic development is achieved by informing commercial organizations about innovation strategies such as new technologies and providing them with consultancy services. Similarly, Goddard and Vallance (2013) emphasize that the contribution of universities to innovation, in helping to create new knowledge-intensive economic activities and employment, is critical in regional economic development. EUA’s study by Reichert (2019) titled “The Role of Universities in Regional Innovation Ecosystems”, it is stated that the open innovation enhances the role of universities. Thanks to this approach, the partnership between companies and universities diversify and intensify.

Lastly, universities make their most important contribution to Ankara by hosting panels and symposiums, even broadcasting the same on their television channels in order to convey such events to larger audiences. Based on the results given above, basic recommendations can be presented in the following order:

1. Ankara is a nest for small-scale industrial organizations such as furniture manufacturers, wholesale merchants, etc. In this context, Ankara is the center of trade chambers and associations. Increasing productivity in the economy is only possible with a qualified workforce and sharing new technological and industrial advances with producers. It would be appropriate for universities to enrich their studies conducted in recent years in this field and improve their techno-park applications.

2. Ankara is a center for a number of reputable state and private universities. In this context, the city makes crucial contributions to advances in science both in Turkey and worldwide. Universities in Ankara have been hosting their scientific events such as congresses, symposiums, panel etc. in regions where sea tourism is developed. Restoration of the Old Ankara houses will enable the use of these houses for accommodation purposes. If universities host their scientific events in this region, that will provide significant economic input for Ankara, thus play a role in the development of the city.

Ankara has been the capital of Turkey since the foundation of the Turkish Republic. In this context, the Turkish Great National Assembly accommodates all state organizations and institutions in the city center. That Mustafa Kemal Ataturk, the founder of the Turkish Republic, rests in Ankara in his tomb makes the city more important. Therefore, it would be to the very benefit of Ankara if universities enrich their studies especially in the fields where they consider themselves insufficient.
Consequently, it is understood that universities in the scope of the present study have made significant contributions to Ankara Province. Notwithstanding these contributions, there are incomplete, overlooked, even ignored issues to dwell on. Universities’ becoming aware of these outstanding issues will allow them to make even greater contributions in the future to Ankara on social, cultural and economic grounds.

REFERENCES


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Modeling the Relations Among Argumentativeness, Epistemological Beliefs and Self-Regulation Skills

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Abstract

This study was conducted to examine the structural relationships among pre-service science teachers' scientific epistemological beliefs, self-regulation skills, and their disposition towards participating in argumentation. For this purpose, structural equation modeling (SEM) was applied in the study in which 229 pre-service science teachers participated. According to the results, development dimension of epistemological belief predicted argument approach positively, while source and certainty dimensions predicted argument avoidance negatively. All dimensions of epistemological beliefs, except for the certainty dimension, predicted self-regulation skills positively. When the relationship between self-regulation skills and argumentativeness was examined, it was revealed that pre-service science teachers' self-regulation skills such as asking questions and goal setting positively predicted participation in argumentation. According to the findings, it can be concluded that demonstrating the relationship between self-regulation and argumentativeness would make a significant contribution to the literature.

Keywords: Argumentativeness, Preservice Science Teachers, Scientific Epistemological Beliefs, Self-Regulation.

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INTRODUCTION

Argumentation is an indispensable part of learning and teaching science. The idea of integrating the process similar to the way scientists produce science into science learning and teaching environments has caused argumentation to have an important place in science education literature (Duschl & Osborne, 2002; Sandoval & Reiser, 2004). According to Osborne (2010), argumentation is a scientific practice in which students construct, critique, evaluate scientific arguments and reason scientifically. During this scientific practice, students ensure that scientific knowledge is constructed and critiqued by performing a social argumentation process (Ford, 2008). In this process, students generate scientific knowledge using written and spoken language, and this generated scientific knowledge is critiqued in a social group and it is resorted to defend and refute knowledge claims (van Eemeren & Grootendorst, 2004). Previous studies have consistently revealed that epistemic, social and linguistic practices embedded in argumentation-based science learning approach contribute positively to cognitive and motivational outcomes such as, conceptual learning (Kingir, Geban, & Gunel, 2013), higher-order thinking skills (Jimenez-Aleixandre & Erduran, 2007), self-evaluation and achievement goals (Asterhan, 2018; Kabataş Memiş & Seven, 2015), and linguistic skills (Demirbag & Gunel, 2014). Although the nature of the science learning approach has shifted from ordinary science practices to controversial and socio-scientific issues and engineering-based practices in recent years, argumentation has remained as an approach that is frequently used by researchers in the context of these issues. Indeed, in many studies, it was observed that argumentation improved effective decision making, argument development and conceptual learning processes in socio-scientific issues (Balgopal, Wallace, & Dahlberg, 2017; Venville & Dawson, 2010) and was used as a direct teaching method in STEM-based practices (Kuhn & McDermott, 2017).

However, despite the positive contributions mentioned above, some students do not participate in argumentation processes in classes where argumentation-based science learning takes place (Nussbaum, Hartley, Sinatra, Reynolds, & Bendixen, 2002). For instance, students do not express their opinions and avoid being part of the process in environments where arguments on socio-scientific issues such as nuclear power plants, genetically modified foods and cloning are conducted. Individuals tend to participate in or refuse argumentation for various reasons. Individuals’ tendencies to participate in or to be far away from argumentation were explained by Infante and Rancer (1982) with the concept of argumentativeness.

When the studies on the concept of argumentativeness in science education are examined, it can be said that the number of studies related to this concept is limited. Researchers indicate that there is a need for the clarification of the concepts that are associated with this concept (Bahcivan, 2019; Nussbaum & Bendixen, 2003). Therefore, in this study, it was aimed to test the relationships among the concept of argumentativeness, epistemological beliefs and self-regulation. It was considered that epistemological beliefs, self-regulation and argumentativeness could be closely associated with each other. For instance, evidences showing that epistemological beliefs have an effect on the concept of argumentativeness are already available in the literature, although they are limited in number (Bahcivan, 2019; Nussbaum & Bendixen, 2003). Also, the structure of epistemological beliefs intertwined with self-regulation was frequently discussed in the literature (e.g., Barzilai & Zohar, 2014; Muis, 2007). Although the relationship between self-regulation and argumentativeness is not clearly stated in the literature, there are clues that these two concepts might be related. For this reason, it is important to investigate this possible relation. It can be said that the concept of self-regulation, which includes individuals' planning, monitoring and evaluation of their own learning processes, and whether they insist on an effective task, may be an effective parameter for participation in argumentation. Because individuals with high self-regulation skills exhibit an insistent and effort-oriented attitude in performing difficult tasks, however, individuals with low self-regulation skills avoid performing these tasks (Pintrich, 2004; Won, Wolters, & Mueller, 2018). Students' avoidance of the argumentation process, which is an important problem in the literature, might be related to considering argumentation as a challenging task. Demonstrating how the concept of argumentativeness is associated with epistemological beliefs and self-regulation skills may contribute...
to the literature investigating which individual characteristics of students are far away from or close to argumentation.

- What are the relationships among preservice science teacher’s epistemological beliefs, self-regulation and argumentativeness?

**Background**

**Epistemological Beliefs**

Epistemology means philosophy of knowledge (Cevizci, 2012). Epistemological beliefs can be defined as the beliefs about knowing and knowledge (Hofer & Pintrich, 1997). As frequently mentioned in the literature, there are four sub-dimensions of epistemological beliefs: justification and source dimensions in beliefs about knowing, and certainty and simplicity dimensions in beliefs about knowledge. When the perspectives on epistemological beliefs in the literature are reviewed, it appears that epistemological beliefs are divided into three main trends: developmental, multidimensional and domain-context specific. Developmental trend argues that the development in epistemological beliefs occurs in all dimensions (justification, certainty, simplicity and source) similar to cognitive development (Baxter & Magolda, 1992; King & Kitchener, 2004). In multidimensional trend, these four dimensions are considered to develop independently from each other (Schommer, 1990). For instance, while an individual has a sophisticated belief that knowledge is uncertain in the certainty dimension under the beliefs about knowledge, he/she may have an authority-dependent naive belief in the source dimension under the beliefs about knowing dimension. In domain-context specific trend, individuals’ epistemological beliefs may differ from context to context or depending on the nature of the issue (Buehl, Alexander & Murphy, 2002; Elby & Hammer, 2001). For instance, a teacher who believes that the knowledge is constructed by multiple justification may adopt a traditional attitude by exhibiting a view of authority figure in an exam-oriented or success-oriented context. While knowledge with physics domain is certain for an individual, biology knowledge can be considered as more changeable knowledge.

When the studies on epistemological beliefs in the fields of educational psychology and science education are reviewed, there are evidences showing that epistemological beliefs are closely associated with cognitive and metacognitive components such as academic achievement (Lodewyk, 2007), goal orientation (Bråten, & Strømsø, 2004), argumentation processes (Wu & Tsai, 2011), self-construal (Bahcivan & Cobern, 2016), and higher-order thinking (Phan, 2008). Many studies have shown that epistemological beliefs are closely associated with self-regulation, which is one of the key concepts of this study (e.g., Greene, Muis, & Pieschl, 2010; Muis, 2007; Strømsø & Bråten, 2010). For instance, Pieschl, Stahl and Bromme (2008) revealed that epistemological beliefs strongly affected the biology students’ self-regulation skills such as processing the more complex, deeper-level learning. In their study conducted with 84 physics undergraduates, Strømsø and Bråten (2010) reported that students with advanced epistemological beliefs about Internet-based information were more likely to use self-control strategies while using the Internet. In another study conducted with 439 post-secondary students, Muis et al. (2015) concluded that epistemological beliefs predicted the self-regulation skills, such as critical thinking, elaboration, rehearsal, and metacognitive control, through negative or positive epistemic emotions. These studies demonstrated that an advanced epistemological belief triggered the strategies that were closely related to self-regulation skills.

**Self-Regulation**

Self-regulated learning (SRL) is a key concept which includes cognitive and metacognitive skills. It can be defined as “an active, constructive process whereby learners set goals for their learning, and then attempt to monitor, regulate, and control their cognition, motivation and behavior, guided and constrained by their goals and the contextual features in the environment” (Pintrich, 2000, p.453). According to Winne and Hadwin’s (1998) SRL model, SRL has four components, which are
task definition, goal setting and planning, studying tactics, and adaptation. When more innovative models are examined, it is observed that SRL continues to be conceptualized in accordance with its theoretical background. For instance, Muis (2007) defined self-regulated learning as 1) task definition, 2) planning and goal setting, 3) enactment, and 4) evaluation. Therefore, self-regulated individuals can be defined as individuals who choose any task, have planning and goals, and determine and implement their strategies in line with these goals, and then evaluate after the process. In the literature, many studies are showing that SRL is closely related to concepts such as epistemological beliefs (Pieschl, Stahl & Bromme, 2008) self-efficacy (Trautner & Schwinger, 2020) achievement (Muis, 2008) and problem-solving skill (van Gog, Hoogerheide, & van Harsel, 2020). There are many studies showing that self-regulation is closely related to argumentation. However, the relationship between self-regulation and argumentativeness (i.e., tendency to participate in or withdraw from argumentation process) has not been clearly stated.

Indeed, motivational factors such as self-regulation and self-efficacy are effective concepts for individuals to exhibit behaviors such as acting insistently, making efforts, and participating in or being far away from the action by demonstrating positive and negative emotions in challenging environments (Pintrich, 2004; Won et al., 2018; Zimmerman & Cleary, 2009). The relationship between motivational factors and such actions may provide clues that argumentativeness and the concept of self-regulation may be related. For instance, preservice teachers may consider argumentation as a challenging task, and having a high level of self-regulation during the challenging process may affect their participation in argument, in other words, adoption of an argument approach attitude. Or vice versa, students with low levels of self-regulation may not consider argumentation as a valuable task or they may be far away from argumentation without making any effort during argumentation. Individuals who cannot display their learning strategies effectively during the argument may be far away from argumentation by having negative feelings and thoughts through their own learning processes.

Argumentativeness

Individuals' tendencies to participate in or to be far away from argumentation were explained with the concept of argumentativeness by Infante and Rancer (1982). According to Infante and Rancer (1982, p.72), argumentativeness is conceptualized as a generally stable trait which predisposes the individual in communication situations to advocate positions on controversial issues and to attack verbally the positions which other people take on these issues. Argumentativeness is an individual trait and closely related to emotions, and there are two types of argumentativeness traits. They are argumentativeness approach and argumentativeness avoidance according to Infante and Rancer (1982). Individuals who are more prone to argumentation consider the argumentation as an exciting intellectual activity and tend to argumentation by having good feelings like invigorated, satisfied, and amusement in this environment where they defend their arguments. Individuals who avoid argument have unpleasant feelings before, during and after the argument, and individuals prefer to be far away from argumentation by being motivated and happy only when the argumentation is over (Infante & Rancer, 1982). When studies examining the relationship between the concept of argumentativeness and epistemological beliefs are examined, it is observed that there were mixed results. Nussbaum and Bendixen (2003) concluded that epistemological beliefs predicted the argument avoidance instead of argument approach. Unlike Nussbaum and Bendixen (2003), Bahcivan (2019) concluded that sophisticated epistemological beliefs in certainty and justification dimensions triggered the argument approach trait. Similarly, Demirbag and Bahcivan (2021) founded that sophisticated epistemological beliefs in source dimension positively predicted argument approach. In this context, it can be said that the literature needs further investigations.

The Proposed Model

When the relationships between epistemological beliefs, self-regulation skills and argumentativeness were examined based on the literature presented above, the model in Figure 1 was
proposed in this study. Preservice science teachers (PSTs) epistemological beliefs can be expected to positively predict metacognitive self-regulation under the concept of self-regulation (Hypothesis 1 – H1). If PSTs have sophisticated beliefs in the nature and knowing of scientific knowledge, they can use cognitive and metacognitive strategies such as questioning and goal setting effectively in the process of constructing and evaluating knowledge. Secondly (Hypothesis 2 – H2), PSTs with an advanced epistemological belief can be expected to display an argumentation approach. Although there are mixed results in studies showing this relationship (Bahcivan, 2019; Nussbaum & Bendixen, 2003); PSTs, who believe that scientific knowledge is tentative, relationally interconnected, and constructed by themselves through multiple justification processes, may consider argumentation or argument environment as an opportunity for learning. Therefore, it can be expected that an advanced epistemological belief will positively predict an argument approach. Finally, (Hypothesis 3 – H3), no study that directly showed the relationship between these two concepts as presented above was found, it can be said that self-regulation may be related to argument approach and argument avoidance. In this regard, it can be expected that PSTs claiming that they applied metacognitive strategies in their own learning processes will adopt a positive attitude in an argumentation environment that triggers this application process. Considering its close relationship with strategies such as making effort, insisting and task value, it can be thought that individuals having self-regulation skills may consider argument environment as an environment where they monitor and evaluate their own learning processes and their peers' learning processes, and therefore, they will make an effort to participate in this environment although such an environment may challenge them cognitively.

Figure 1. The Proposed Model

METHOD

In this study, the relationship between the variables presented in Figure 1 was investigated by SEM analysis. Therefore, correlational research design was applied in the study (Fraenkel & Wallen, 2009).

Participants

229 preservice science teachers who were selected from different public universities in Turkey by convenience sampling participated in the study. The participants were chosen among 2nd, 3rd and 4th graders because they had a stronger science teaching and learning experience than the 1st graders because of the number of courses taken.
The Instruments

Scientific Epistemological Beliefs Scale

The Scientific Epistemological Beliefs Scale was originally developed by Conley, Pintrich, Vekiri and Harrison (2004). The scale consists of 26 five-point Likert items with four dimensions: certainty (6 items; e.g., “Scientific knowledge is always true.”), source (5 items; e.g., “Everybody has to believe what scientists say.”), development (6 items; e.g., “Ideas in science sometimes change.”) and justification (9 items; e.g., “Ideas in science can come from your own questions and experiments.”). Participants’ item scores in certainty and source dimensions were reversed because the items in this sub-dimension have negative question roots by their nature. The scale was adapted into Turkish in the study conducted with preservice science teachers by Bahcivan (2014). The fit indices of the scale were presented as ($\chi^2$/df=1.44, CFI=.95, TLI=.93 and RMSEA=.04). The reliability scores of the sub-dimensions of the scale were between .66-.82. In this study, a confirmatory factor analysis (n=229) of the scale was conducted before performing the SEM analysis. According to the confirmatory factor analysis result, one item from certainty dimension, two items from development dimension and one item from justification dimension were excluded since their factor loading was lower than .40 (Shevlin & Miles, 1998).

According to the confirmatory factor analysis result, it was observed that measurement results had acceptable fit indices ($\chi^2$/df=1.36, CFI=.96, TLI=.95 and RMSEA=.04). Furthermore, factor loadings of the scale were between 0.45-0.79. Alpha reliability scores were calculated as .79, .84, .65 and .75 respectively, for certainty, source, development and justification dimensions.

The Motivated Strategies for Learning Questionnaire

The Motivated Strategies for Learning Questionnaire (MSLQ) in 7-point Likert form developed by Pintrich, Smith, Garcia & McKeachie (1993) was used to measure self-regulation. The scale consisted of 81 items, including 31 items for motivation scale and 50 items for learning strategy. Since the concept of self-regulation was directly used in this study, 12 items constituting the metacognitive self-regulation sub-dimension under the learning strategy title of the MSLQ scale were used. This sub-dimension of the MSLQ scale (e.g., “If course readings are difficult to understand, I change the way I read the material”) was used in previous studies, and the researchers (Akyol, Sungur, & Tekkaya, 2010) indicated that the scale had acceptable fit indices (CFI=.90, GFI=.92, RMSEA=.06) (Akyol et al., 2010). Prior to analysis, two of the scale items were recoded. Then, a confirmatory factor analysis was conducted for validation. According to the CFA result, 4 items with low factor loadings were excluded from the analysis. According to the result of this analysis (n=229), it can be said that acceptable fit indices were achieved. ($\chi^2$/df=1.50, CFI=.99, TLI=.97 and RMSEA=.05) Furthermore, factor loading scores between .48-.86 and an alpha reliability score of .82 were achieved.

Argumentativeness Scale

The Argumentativeness Scale developed by Infante and Rancer (1982) was used to determine individuals’ dispositions to participate in or getting far away from argumentation during argumentation. It is a 20-item scale in 5-point Likert format (1=almost never true for you to 5=almost always true for you) consisting of two sub-dimensions which are argument approach and argument avoidance. There are 10 items in both sub-dimensions. The items involve cognitive and emotional evaluations affecting individuals’ participation in (e.g., “I enjoy defending my point of view on an issue.”) or getting far away from (e.g., “I get an unpleasant feeling when I realize I'm about to get into an argument.”) a conflict argumentation environment. The scale was first adapted into Turkish by (Demirbag & Bahcivan, 2021). In this study, according to the exploratory factor analysis result, 2 items were eliminated from the argument approach and avoidance sub-dimension because of factor loading scores lower than .40. For the adapted version consisting of 16 items, reliability coefficient of the sub-dimensions of the scale was found to be .79 for argument approach dimension and .80 for
argument avoidance dimension. In this study, confirmatory factor analysis (CFA) was applied to this adapted scale. According to CFA (n=229) result, one item was eliminated from argument avoidance dimension because factor loading was below .40. CFA analysis showed that scale results had good fit indices ($\chi^2$/df=1.33, CFI=.98, TLI=.97 and RMSEA=.04). The factor loadings of the scale were between .44-.87. Furthermore, alpha reliability scores for the argument approach and argument avoidance dimensions of the scale were .80 and .85, respectively.

**The Procedure**

Due to the pandemic season, the instruments were electronically administered to the participants through Google forms. Prior to the administration of the instruments, necessary ethical permissions were obtained and participants were informed about the aim of the study. A control item in the form of “Please mark 5 in this question” was written among the question items in the scale in order to eliminate possible errors that may be reflected in the data collection process. 261 preservice science teachers enrolled in different public universities participated in the study. However, as a result of excluding 32 individuals who gave inappropriate response to the control item, 229 individuals were included in the study.

**Data Analyses**

Prior to performing the SEM analysis, confirmatory factor analysis (CFA) was conducted through AMOS program to validate the data obtained from the instruments. SPSS 25 program was used for the reliability scores of the scores obtained from the instruments. The values obtained as a result of the CFA are presented under the title of data collection tools. SEM analysis assumptions and SEM analysis results are presented below.

**Multivariate Normality**

It is necessary to examine the multivariate normality assumption in order to decide whether SEM analysis can be applied to the obtained data set. The Mardia’s coefficient was used to examine this assumption (Khine, 2013). In the AMOS Program, the value at the bottom of the column that contains the Multivariate row and kurtosis value of the table showing the Results of Multivariate Normality Analysis is the Mardia’s coefficient. If the value achieved as a result of the formula $p*(p+2)$, where the number of observed variables used in the study is $p$, is greater than the Mardia kurtosis value, it is assumed that the data set meet the multivariate normality assumption (Raykov & Marcoulides, 2008). There were a total of 45 observed values (items) in the model in which the relationship between epistemological beliefs, self-regulation and argumentativeness were structurally tested. Since the value obtained according to the $p*(p+2)$ formula (2115) was greater than the Mardia kurtosis value (236.89), it was determined that the data set met the multivariate normality assumption and the SEM analysis was performed.

**RESULTS**

SEM analysis was conducted to test the structural relations between the variables in the proposed model in Figure 1. According to SEM analysis (n=229) result, it can be said that the proposed model had acceptable fit indices ($\chi^2$/df=1.37, CFI=.91, TLI=.90 and RMSEA=.04). The significant relationships among the variables in the model are presented in Figure 2.

It was concluded that source, certainty and justification dimensions of the epistemological beliefs of PSTs significantly predicted self-regulation. While source and justification had a positive relationship with self-regulation, surprisingly, certainty dimension negatively predicted self-regulation. On the other hand, when the relationship between epistemological beliefs and argumentativeness was examined, the source and certainty dimensions of epistemological beliefs negatively predicted the argument avoidance. Furthermore, when Figure 2 was examined, it was
observed that only one dimension of epistemological beliefs was related to the argument approach dimension. Having a sophisticated belief in the development dimension of epistemological beliefs positively predicted the argument approach indicating the tendency to participate in argumentation. When the relationship between self-regulation and argumentativeness was examined, it was concluded that self-regulation had a positive relationship with the participation in argumentation.

Figure 2. Statistical model (\(*p<.001, \, \, \, *p<.05)\)

DISCUSSION

According to the results of the study, it can be said that epistemological beliefs had an important role in determining higher-order thinking skills and dispositions to participate in argumentation processes. This result implies that epistemological beliefs are closely related to self-regulation, which is considered as a higher-order thinking skill and is a key concept regarding motivation in the literature. When the positive relationships between the source and justification dimensions of epistemological beliefs and self-regulation are considered, the development of preservice teachers' understanding of generating knowledge by justifying from multiple sources of evidence and beliefs in questioning the scientific authority may be regarded as the trigger of a metacognitive self-regulation (asking, goal setting, etc.) process. This result is similar to previous studies (e.g., Alpaslan, Yalvac, Loving & Willson, 2016; Muis & Franco, 2010). On the other hand, certainty dimension of epistemological beliefs showed a negative relationship with self-regulation, contrary to the expected hypothesis.

In the proposed model, we considered that preservice teachers' sophisticated beliefs that scientific knowledge is tentative and evolving would positively predict self-regulation. However, the
findings showed the opposite of this expectation. In other words, it was revealed that preservice teachers who believed that scientific knowledge is certain tended to have higher levels of metacognitive process. Preservice teachers may have considered the need for making more efforts and performing higher-order examinations in order to reach the principles and laws of science that are precise and unchanging for now (e.g., force of gravity). Preservice science teachers' learning and teaching concepts related to these pure science issues mentioned in learning practices may also have affected this situation. Their regulations and habits for the processes of learning precise and unchanging knowledge could be effective in the emergence of such a relationship between epistemological beliefs and self-regulation.

Nevertheless, it frequently appears that some dimensions of epistemological beliefs gave results contrary to expectations in different studies (e.g., Nussbaum & Bendixen, 2003). The reason for this unexpected result may result from cultural differences and contextual factors. The fact that the Scientific Epistemological Beliefs Scale consisted of domain general items may have been the reason for this situation. The relationship with PSTs' certainty dimension with self-regulation may give different and more consistent results in discipline-specific asked questions.

When the relationship between epistemological beliefs and argumentativeness is examined, it can be said that this relationship gave more consistent results with the hypotheses presented in the proposed model. The source and certainty dimensions of epistemological beliefs negatively predicted argument avoidance dimension. This result implied that preservice teachers averted from an argument avoidance as their perception of authority decreased regarding the source of knowledge and they thought that scientific knowledge is not precise. In brief, sophistication in certainty and source dimensions impede tendency to argument avoidance. Because there are evidences indicating that students with advanced epistemological beliefs exhibit an insistent attitude towards cognitively demanding tasks in challenging environments (Bråten, Anmarkrud, Brandmo & Strømsø, 2014). In addition, Demirbag & Bahcivan (2021) similarly found that the source dimension negatively predicted argument avoidance.

On the other hand, the development dimension of epistemological beliefs was the only epistemic dimension associated with the argument approach. This result differs from Bahcivan's (2019) study. In his study, Bahcivan (2019) indicated that there was no significant relationship with respect to the prediction of argumentativeness by development dimension. However, in this study, the development dimension positively predicted an argument approach. This result, which is compatible with the expected hypothesis, implies that as PSTs believe that scientific knowledge is tentative and evolving, they may have tended to have an argument approach. PSTs may have considered argumentation as an environment where evolving and tentative nature of science can be learned.

The results regarding the relationship between self-regulation and argumentativeness demonstrated that self-regulation was positively related with argument approach. However, self-regulation was not found to be related to the argument avoidance dimension. This result is compatible with the hypotheses in the proposed model and will make significant contributions to the literature. Because no evidence indicating the relationship between self-regulation and argumentativeness was found in the literature. When this relationship, which constitutes the original aspect of this study, is examined, it can be said that self-regulation is a significant predictor of participation in argumentation. In accordance with the proposed hypotheses, PSTs exhibited an argument approach as they were specialized in self-regulated strategies such as goal setting, asking questions, organizing, and making efforts. PSTs may also have considered argumentation as the practice of gaining these strategies. Because, in the studies, motivational factors such as self-regulation and self-efficacy were effective concepts for individuals to perform behaviors such as participating in or getting far away from challenging actions (Pintrich, 2004; Won et al., 2018; Zimmerman & Cleary, 2009). This result found in this study confirmed that self-regulation could be an important factor on the act of participating in argumentation.
Conclusions and Implications

According to the results of the study, it was concluded that PSTs’ epistemological beliefs and self-regulation were related with the concept of argumentativeness. Especially considering that the studies on the reasons for some students’ non-participation in argumentation processes, the positive contributions of which are presented in the literature, are limited, it can be considered that this result obtained from the study will contribute to the literature. This study, which was conducted to clarify the concept of argumentativeness in the context of science education, is an extension of the studies conducted by Nussbaum and Bendixen (2003), Bahcivan (2019) and Demirbag and Bahcivan (2021). In this study, as well as in these studies mentioned, the conclusion indicating that especially epistemological beliefs are related to tendencies to participate in or getting far away from argumentation was once again revealed. On the other hand, the finding indicating that the concept of self-regulation, which contains cognitive and effective structures, is an important predictor in the act of participating in argumentation can be considered as the specific result of the study. In this regard, further studies may contribute to the field with regard to examining the causal relationship between the concept of argumentativeness and self-regulation in detail. The behaviors of participating in argumentation and getting far away from the argumentation environment of the students, who are divided into profiles within the context of self-regulation, can be clarified in depth by qualitative studies in which techniques such as observation and stimulated recall interview are used.

Nevertheless, educators who design professional development studies on argumentation-based learning in the science education literature may include studies aimed at the development of the argumentation act through the development of concepts such as epistemological beliefs and self-regulation skills that affect this process.

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Value of Children’s Literature and Students’ Opinions Regarding Their Favourite Books*

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Abstract

In this study, children’s literature was defined according to a review of the related literature. The value and positive effects of children’s literature on children were discussed and opinions of 2nd grade elementary school students’ regarding their most and least favourite books were investigated. Participants consisted of 15 students enrolled in elementary school near the city centre of Ankara, Turkey. The research data were obtained from semi-structured interviews with participating students as well as students’ book scoring forms used to rate 25 books provided to them. First, students’ scoring forms were reviewed and analysed to determine their choices. Next, interviews were conducted with students regarding the reasons for their book selections. Data obtained from the student interviews were evaluated through content analysis. Finally, according to the students’ responses, the characteristics that made up their most and least favourite books were explained for the educators and parents. Students frequently mentioned internal features, especially the characters and plot of the story, as the primary reasons for determining their most and least favourite storybooks. Also, it was shown in the findings that having characters that were animals, good-hearted, and/or funny as well as having action and adventure within the stories made the storybooks the children’s most favourite. Whereas not having action, being boring, and/or having unsolved problems within the stories as well as being short or having unknown words and expressions made the storybooks the children’s least favourite.

Keywords: Children’s Literature, Storybooks, Children’s Choices

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INTRODUCTION

The concept of children’s literature emerged in the first half of the 20th century, and nowadays, children’s literature has become accepted as an important tool for supporting language development and creativity among preschool and primary school students. Children’s literature can be defined as good-quality trade books varying from prose and poetry to fiction and nonfiction, which are written for children from the ages of birth to adolescence as well as prepared according to the developmental characteristics of children within each age group (Şimşek & Yakar, 2014). The value of children’s literature for young children is both personal and academic. Some of the personal values children’s literature includes are providing joy to children, increasing their imagination and creativity, and allowing them to have vicarious experiences. While it can be argued that the academic value of children’s literature comes from increasing students reading and writing skills as well as informing them about content area knowledge. Thus, children’s books are perceived as educational materials where information and knowledge can be presented to them from a wide range of topics both personal and academic.

It was indicated in the related literature that bringing children together with qualified children’s books at an early age has positive effects on them in a variety of different areas. For example, according to İpek Yükselen and Bencik Kangal (2011), children’s literature can even help children to learn colours. Also, children’s literature can be especially helpful in early childhood education for teaching concepts. Additionally, children’s interaction with literature is essential since books contribute to children’s language development as well as addresses their literary needs (Dursunoğlu, 2007; Galda & Cullinan, 2003; Hayran & Beydoğan, 2017). Adults who share books with children allow students to see books as print models and learn about the style and content of various genres. Importantly, children can use their experiences of seeing and talking about these samples of children’s literature while they are composing their own written texts. Furthermore, the written language awareness of children who interact with books, and their language development in general, are supported as well as their creativity can increase (Galda & Cullinan, 2003; McNair, 2011; Uzuner Yurt, 2014).

Through children’s literature, children can learn the correct and appropriate use of adjectives, pronouns, plurals, and positive or negative expressions. Thus, by increasing their vocabulary it aids students in more easily expressing their feelings and thoughts. For example, children’s literature helps children to see appropriate examples of sentence structure as well as internalize correct sentence patterns (Dayıoğlu, 2000). For this reason, finding exemplary children’s books without grammar and/or punctuation errors is extremely important, for example, students can internalize false use of language, spelling or punctuation mistakes. Also, children’s literature can help to improve children’s thinking skills, allow them to make comparisons between the stories they read, direct them to classify subjects, characters, and objects as well as allow them to conduct guessing and cause-and-effect relationships. Importantly, reading books increases students’ writing skills (Galda & Cullinan, 2003; McNair, 2011), and children’s literature can also improve children’s reasoning and problem-solving skills (Şimşek & Yakar, 2014). Retelling stories, such as talking about problem situations and events, characters’ behaviours, their decisions, motivations, and dialogues, can allow students to work on determining cause and effect relationships. They can also compare various plots, characters, and messages in different stories. Furthermore, children’s literature can improve children’s listening skills as well as contribute to the shaping of their emotions, thoughts, and behaviours, which can aid them in getting to know themselves better (İştan & Gönen, 2007). Through literary works, children also learn about abstract concepts such as kindness, sharing, love, and being helpful, which eventually contribute to the development of their personalities (Uzuner Yurt, 2014). Students are also provided the opportunity to have vicarious experiences through children’s literature. Through books children can feel the joy of going to a summer camp, participating in a competition, traveling the world, and so forth. Additionally, through the characters in various stories, children can learn about important values and desired personal traits.
According to Koss (2015), through children’s literature, children receive cultural messages, values of the society they live in, and information regarding the world. Children interact with books about different countries and have the opportunity to recognise individuals different from themselves as well as others’ cultures and societies. Children’s storybooks have the unique feature of being a map that shows the child where he/she is and how he/she can experience different places. In other words, children can increase their awareness while reading books about other cultures, for example, they may gain information about discrimination explained within a book even though they have not experienced this for themselves (Kelli, 2018; Taylor, 2003). Harits and Chudy (2017), reiterate this function of children’s literature by stating that children’s literature can be a mirror to children in terms of showing them who they are as well as clarifying their feelings, goals, and ideas. In addition, they can also be windows in which children learn about others’ feelings, customs, and experiences. Thus, realistic stories and novels encourage children to interact with the characters as well as help them to understand how the characters solve similar problems within their daily lives.

As a result, it was shown through the related literature that children’s literature improves children’s imagination and creativity; supports students’ language development; enriches their vocabulary and raises awareness regarding a variety of topics. Besides these features, children can also gather information about themselves, their daily experiences and problems, the people and things around them, and even societies and traditions from very distant places. In other words, through literary books children can experience situations and feelings that they do not have, can see the places they cannot see, and can meet people they do not know and experience in their daily lives. Although children’s literature does not have a direct role as a tutor for children, through its subject matter and messages, it provides an undisputed influence for sensing universal values such as empathy, love, and respect as well as being hardworking and helpful. Additionally, children’s literature can improve children’s imagination and creativity, supports the language development of students, enriches vocabulary, and creates awareness regarding the topics and presentation of literary products. Thus, through children’s literature young readers can experience the situations and feelings of people who they do not know and have not met in their daily lives.

**Research on Children’s Literature**

When the related literature in the field of children’s literature was examined, it was recognized that past research is primarily focused on the emotions of characters in children’s books (Alper & Deretarla Gül, 2011), characters’ clothing (Çınar, 2011), ratio of the male and female characters and traditional and untraditional roles of characters within the books (Gooden & Gooden, 2001; Oskamp, Kaufman, & Wolterbeek, 1996; Sever & Aslan, 2011), stereotypes of characters’ occupations (Çatalcalı Soyer, 2009), materials used by male and female characters and their actions (Bayraktar, Kürkçü Metinnam, & Metinnam, 2013; Crabb & Marciano, 2011) places the characters appeared (Oskamp, Kaufman, & Wolterbeek, 1996), effects of quality books on children (Hayran & Beydoğan, 2017), and children’s attitudes towards books (Harkrader & Moore, 1997).

In the process of learning to read and write as well as developing the habit of reading and writing, the use of children’s literature can be valuable in facilitating the learning process. In this context, picture storybooks can also be extremely effective teaching materials because they are normally affordable and easy to find as well as it is important that children have experiences listening to and reading stories from an early age. However, there are some points that should be taken into consideration in order for storybooks to be used effectively. As a result, the characteristics of effective children’s literature have been investigated in a variety of studies (Çakmak Güleç & Geçgel, 2006; Güleryüz, 2006; Karatay, 2014; Oğuzkan, 2000; Sever, 2013). Importantly, the characteristics of effective children’s literature are that they should be suitable for the life, emotion, and thinking worlds of children. According to Sever (2013), there should be no logical mistakes in the books; gender discrimination and/or stereotypes should not be included; a supervisory and oppressive understanding should not be approved in the narration of the events; political and religious suggestions should not be
made; and there should be no messages that prevent the child from dreaming. According to Çakmak Güleç and Geçgel (2006), for a book to be selected for children it should have,

“a simple but well-planned subject, a slight surprise element in its subject, lots of direct conversations in it, repetitions, rhymes and phrases that children can memorize quickly, colourful and thoughtful language, cases from events that children know, simple but satisfying content, and characters that children can easily recognize” (p. 35).

Educators and researchers also provide important points to be considered when preparing and selecting children’s storybooks and place them under the titles of internal structure and external structure of children’s literature products (Güleyüz, 2006; Karatay, 2014; Oğuzkan, 2000; Sever, 2013). For example, the internal structure features of storybooks prepared and/or selected for children should be determined by the topic, character, environment, theme, message, and language and expression. While the external structural features of storybooks prepared and/or selected for children should be determined by the dimensions, covers, bindings, paper quality, page layout, and pictures. In a study that examined the internal and external features of 100 children’s books prepared for primary school children, Gönen, Katrancı, Uygun and Uçuş (2011), state that there is not a lot of variety in the sizes of children’s books, the use of bindings and covers is not strong, and the choice of subjects are limited. Additionally, in some books no message is provided to the children through the story and/or characters as well as there are grammatical errors. They emphasise that the messages provided through the books are primarily in the form of moral advice and/or are related to social rules, however, the rate of visuals in the examined children’s books is found to be quite high.

Harkrader and Moore (1997), investigate students’ attitudes towards books and in their study, fourth graders state that they like reading fictional literature more than nonfiction. Also, boys prefer the main characters to be male, while girls prefer the main characters to be female. The female students queried, mention that they like reading about friendship, fairy tales, animal stories, mystery, adjustment, and historical fiction. While the boys on the other hand state that they do not like reading about fairy tales and friendship, but instead prefer to read about adventure and folk tales. Thus, it can be seen that girls and boys can have different attitudes towards the genres of books they prefer. Additionally, students can also have different interests in terms of having male or female characters as the main character of the story. For this reason, it could be said that investigating the reasons for students’ opinions, attitudes, and motivations for choosing and/or reading specific book themes, genres or characters needs to be given more attention and importance.

Choosing books as qualified model learning materials is important for children’s development and learning, because students are affected by the content and quality of the books they read (Rudden & Nedeff, 1998). For example, in Hayran and Beydoğan (2017), in comparison to the students in the control group who read books they wanted to read, the students in the experimental group read qualified children’s books selected by the researchers and are found in the end to be more successful at providing examples, making comparisons, developing conclusions, interpreting text, summarizing, and providing explanations and classification.

In other research, students’ literature preferences were heavily investigated (Akrofi, Janisch, Button, & Liu, 2010; Beach, 2015; Harkrader & Moore, 1997; Haynes & Richgels, 1992; Kauffman, 2005; Kragler, 2000; McNair, 2011; Mendoza, 1983; Mohr, 2006; Williams, 2008). For example, Kauffman (2005), investigates which story elements 3rd grade students find important for determining whether they like or dislike a story. Students read the summaries of nine stories and are asked to write a reflection about whether they like or dislike the stories including their reasons behind their choices. Then, the students’ responses are coded under five categories such as plot, character, theme, setting, and other. It is shown in the results that students use different story elements for deciding whether they like or dislike a story. For instance, characters and themes are the two most popular categories they mention regarding the stories they like. On the other hand, students mostly mention plot as the reason for not liking a story. It is also recognized that the stories most liked by students focus on friendship
and appreciation. In another study, Beach (2015), investigates children’s and librarians’ opinions regarding more than five thousand children’s books and find that their favourites differ. For example, children mainly choose books about home and childhood experiences as well as prefer enjoyable plots and books about sports. Whereas librarians prefer plots related to school subjects and other important global issues.

Unfortunately, there is a limited amount of research regarding Turkish students’ storybook preferences. Examples of research on this topic are Altunkaynak (2018), who examines 28 primary school students’ opinions regarding children’s storybooks, and finds that students prefer to have superheroes, cartoon characters, young characters, and famous people in the books they read. In addition, the students state they want characters in the books to be intelligent, curious, strong, good, hardworking, and cheerful. Also, they do not want to read about bad, stingy, and arrogant characters. The topics they prefer to be covered in the books they read span from most to least are friendship, family, adventure, science fiction, religious subjects, love of animals, and nature consciousness. Ateş, Çetinkaya and Yıldırım (2012) examine the interests of teachers, 4th and 5th grade students, and the students’ parents pay attention to when choosing books. The researchers determine that teachers and parents pay attention to similar criteria, while students’ priorities are different from the other groups. For example, the four most important criteria for teachers and parents are suitability according to the age and group level, the subject matter, students’ interests, and the language of expression. Parents emphasise the features of being educative and instructive as a fifth item, whereas teachers focus instead on the physical properties of the books. The five criteria that students find important are the text size, cover, pictures, physical characteristics of the book such as being solid, attractive, not having many pages as well as being suitable for their age level and interests. As a result, these findings highlight the importance of investigating children’s opinions regarding what they focus on when determining their favourite books.

Children’s literature can not only be used to teach students how to read and write but can also help to increase their language, emotional, and cognitive skills. As previously stated students can learn about global values and become more skilful at problem solving as well as thinking critically and creatively. The elementary school years are an especially important time for younger students to gain strong reading habits as well as develop positive attitudes towards reading both inside and outside of school. For this reason, knowing students preferences when selecting books is important for educators because it is critical to encourage their students to interact with books so that the students’ can develop a habit and love of reading. According to students’ preferences for books, foreign literature often provides desirable characteristics that meet the students’ interests regarding children’s literature. However, which features children pay attention to when determining their favourite books has not been thoroughly investigated in Turkey. Thus, the purpose of this current study was to investigate how students determine their most and least favourite storybooks as well as which characteristics they pay attention to when selecting storybooks. Furthermore, it was also considered that having knowledge about the types of literature children are interested in reading can assist teachers and parents in making informed decisions about which books they should purchase and/or obtain for their children to read. As a result, the research questions being investigated in this study are provided in the following:

1. Which features do students like most about books?
2. Which features do students like least about books?
3. What are the characteristics of children’s favourite books?
4. Which book was chosen as the best children’s book?
METHODOLOGY

The current study was qualitative in nature and carried out using a descriptive scanning model. The study data were collected through individual semi-structured interviews as well as book scoring forms completed by the students. The data were also analysed utilising the content analysis method. Similar to Karasar (2006), throughout this current study, attempts were made to reveal the students’ perceptions as well as the events observed in a realistic and holistic manner without manipulating the students’ natural learning environment.

Participants

The participants of this study consisted of 15 students (six girls and nine boys) studying in the 2nd grade of a primary school near the city centre of Ankara, Turkey. In this study both purposive and convenience sampling methods (Creswell & Clark, 2017) were employed. In convenience sampling the researcher chooses to work with a nearby and easy-to-access group of people. Thus, convenience sampling provides both practicality and speed to researchers (Yıldırım & Şimşek, 2016). Additionally, these students were purposefully chosen because the teacher of the classroom was praised by the school principal as well as other teachers for effectively utilising children’s literature within her daily curriculum. Furthermore, both the participating classroom teacher and school principal were interviewed, and as a result, valuable information was gained that the reading levels of her students’ were higher than the grade-level benchmarks. Additionally, the teacher was head of her university’s “Literature Society” student-organisation during her undergraduate education. During the time of this study, she also had bookshelves in both her home and school classroom which were rich in various types of books. The students in her classroom had their own libraries at home as well as were knowledgeable and familiar with picture storybooks. Additionally, the school had a big library in which students could find and access several book samples as well as participate in educational activities such as interactive reading, role playing, and drama. Importantly, the classroom teacher volunteering to participate in this study and the students having knowledge of and opportunities to interact with children’s literature were all taken into consideration when determining to carry out the current research in this particular classroom.

Data Collection

The research data were obtained utilising the semi-structured interview technique as well as by the calculating the scores provided from students regarding the 25 children’s picture books they were asked to read. First of all, the students were supplied with a scoring form used to rate the 25 books supplied by the researcher. On the scoring form, scores from 0 to 100 were listed next to the name of each book, and the students were asked to rate each book according to a score of 0 to 100. To select books for 2nd grade primary school students, the developmental appropriateness and good quality book features (i.e., engaging, text/illustration connection, language use, rhythmic elements, having strong characters, theme, and ability to evoke emotion) were thoroughly reviewed. In addition to these, similar to the recommendations of Çakmak Gülçek and Geçgel (2006), when selecting books, the researcher paid attention to whether the books have a simple but well-planned subject, a surprise element within the subject, lots of dialogue among the characters, and use colourful language. Additionally, during the selection of the 25 children’s books, suggestions from both the classroom teacher and an academic working in the field of children’s literature were taken into consideration. Furthermore, in this current research, fiction books were chosen for the children’s books due to it being highlighted in past research that children prefer fictional books to informational books (Awais & Ameen, 2013; Chapman, Filipenko, McTavish, & Shapiro, 2007; Clark & Foster, 2005; Robinson, Larsen, Haupt, & Mohlman, 1997; Williams, 2008).

Among the 25 children’s picture books chosen, 21 of the books (84%) were written by Turkish authors, and four of the books (16%) were written by foreign authors. Additionally, 64% of the books were written by female authors, 12% were written by male authors, and 24% had more than
one author. The number of pages in each book ranged from 8 to 30 pages, while the average number of words per sentence varied from an average of five words per sentence in 2 books (8%), six words per sentence in 1 book (4%), seven words per sentence in 11 books (44%), eight words per sentence in 9 books (36%), one book (4%) with an average of nine words per sentence, and eleven words per sentence on average in the last book (4%).

**Procedure**

To begin, following the process of selecting the appropriate 25 children’s picture books, the books were brought to the classroom and briefly introduced to the students. The students were informed that they would each have an opportunity to read all the books independently one-by-one as well as listen to them being read aloud in the classroom by the researcher. Later, they would be asked to determine how much they liked each book and provide a score on the book scoring form from 0 to 100. Each of the books were given to students for them to read silently in the classroom as well as to take home, read it again, and then score it according to the level of how much they liked each book. Finally, the researcher would read aloud one of the 25 books each day for the students in the classroom, and the students were asked to re-check their score for that particular book on their book scoring form. If so desired, the students could change their scores and the scores could be changed up until each book had been read, listened to, and discussed with the researcher.

During the research period which lasted approximately 10 weeks, while the students were reading and scoring the books, the research topic was reviewed in the relevant literature and interview questions were prepared as well as expert opinions were gained regarding aspects of the research. The prepared interview questions were shared with two lecturers working in the field of assessment and evaluation in education, two lecturers working in the field of children’s literature, and the classroom teacher whose students were participating in the study. Thus, based on their recommendations, the interview questions were finalised. As a result, the students were asked the following five questions: 1) Of the books you have been given to read, which is your favourite one and why?, 2) What do you think makes a good story?, 3) What do you pay attention to while choosing the books you will buy?, 4) Do you have a favourite book other than the books that have been given to you? If so, what are its features?, and 5) What are the features of the books you dislike?

After all the books were read, listened to, and scored, the book scoring forms were collected from the students and semi-structured qualitative interviews were conducted with 15 students. Importantly, qualitative interviews can provide researchers an opportunity for interaction, flexibility, and using probing questions, which may ultimately better reveal the subjects experiences and meanings (Yıldırım & Şimşek, 2016). In this current study, the interviews took place in an empty classroom provided by the school principal. The participating students were interviewed individually, and all the interviews were audiotaped and later transcribed. During their interviews, the book scoring forms of the students and the books that they had given the highest and lowest scores were placed on the table. The children being interviewed were allowed to view the books, and if needed, review any of the books during the interview process.

**Data Analysis**

In the data analysis process, the technique of content analysis was utilised as part of the qualitative research methods. Content analysis is an important research tool because it allows for the systematic interpretation of non-numerical data. Thus, the data obtained from the recordings of face-to-face interviews with participating students were analysed and the frequency (f) of their responses were determined. The opinions of participating students were also included within the research analysis findings. Finally, the book scoring forms used by the students to rate the 25 children’s picture books on a scale of 0 to 100, were examined and the books were ranked overall according to the most to least favourite books.
FINDINGS

In this current study, children’s literature was defined according to a review of related literature, and the positive effects of children’s literature on children were presented. Additionally, the opinions of 2nd grade elementary school students’ regarding their most and least favourite books were investigated. The students’ book scoring forms were analysed to determine which books were rated as their most or least favourite books. Interviews were also conducted with students regarding their book choices and the reasons for their choices. According to the students’ responses, the characteristics that made up their most favourite books and their reasons for choosing them were shared with and explained to the educators and parents.

The research findings are presented here according to the order of the four research questions investigated. As a result, the analyses of the students’ responses to the first research question regarding the features students liked most about the books, revealed two sub-dimensions which included the internal and external features of the storybooks. Thus, the students’ responses regarding what aspects constituted a storybook as their favourite are presented in Table 1.

Table 1. The Features Students Like the Most About Books

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<td>Internal features</td>
<td>Character</td>
<td>Having good characters (personality) (1B, 3G, 4G, 10B, 14B)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Having animals as characters (1B, 4G, 7B, 9G, 11B)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Having attractive characters (5B, 9G)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Having an interesting plot (15B)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Having an adventure (12B)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Having mystery (12B)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Being funny (1B)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Being informative (7B)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Being logical (1B)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Having surprises (2G)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Having a happy ending (14B)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Having magical things occur in the book (13G)</td>
</tr>
<tr>
<td>External features</td>
<td>Message</td>
<td>Having educational messages (8G, 13G)</td>
</tr>
<tr>
<td></td>
<td>Cover</td>
<td>Having a beautiful cover (9G)</td>
</tr>
<tr>
<td></td>
<td>Illustrations</td>
<td>Having beautiful illustrations (5B, 9G, 11B)</td>
</tr>
<tr>
<td></td>
<td>Length</td>
<td>Being a long story (5B, 11B)</td>
</tr>
</tbody>
</table>

As seen in Table 1, students’ responses were primarily focused on the internal features of stories including the characters, plot, and message. While the cover, illustrations, and length were seen as important external features of storybooks. Importantly, the students’ answers yielded that the character and plot of the stories were the main determinants behind their choices of favourite storybooks. For example, 1/3 of the students stated that having animal characters and having characters which were good made the stories as their favourite. Student 1 (Boy) stated that, “Because the lion is an animal that I love very much... Another characteristic I love (about this book) is the mother lion protects her cubs”. Student 4 (Girl) expressed she liked a book titled, Colourful Chicks (Renkli Civcivler), and provided her motivation as, “I want to read about, and I love chicks too”... “I liked that the children grabbed and pulled their grandfather and also they took them when they went to the market and the chicks were colourful”. Another participant, Student 7 (Boy) stated that he chose the book, “Little Leo” as his favourite. His reason was, “Because I love animals, I love predators, and stuff”. While Student 9 (Girl) mentioned she liked the book titled, “A Day in the City”, and she emphasised that having animal characters made the storybook one of her favourites stating, “Because there are animals and a very sweet aunt (in the story)” is why she chose it. Student 3 (Girl) stated that her reason for determining a favourite book depended on the personality traits of the main character. Her favourite book was, “The Good-hearted Doctor”, and her reason for choosing this book as her favourite was, “Because the doctor is kind-hearted, I like kind-hearted doctors very much. The doctor works for patients very much”. Two students also mentioned that having attractive characters made the stories more favourable.
In terms of plot, the students mentioned the importance of having an interesting plot, an adventure, mystery, surprises, a happy ending, and magical things occurring in the book. In addition to these features, the students also mentioned that they liked the books because they were funny, informative, and logical. Importantly, all of these responses were stated at least once by a variety of students. In terms of message, two girls stated that they liked having educational messages within books. When it comes to the external features of the books, two girls and one boy mentioned having beautiful illustrations, while two other boys liked the length of the stories (as being long), and one girl stated that the book covers were beautiful.

The analyses of students’ responses to the second research question regarding the features students liked the least about the books revealed the two sub-dimensions of books affecting their choices including the internal and external features of storybooks. For example, students’ responses regarding what constituted a storybook as not being one of their favourites, were primarily focused on plot, characters, and the language and expression of the story. There was also a response from one student regarding the illustrations of the stories as an external feature that effected their choice. The students’ responses regarding what features they liked the least about books are presented in Table 2.

Table 2. The Features Students Like the Least About Books

<table>
<thead>
<tr>
<th>Features</th>
<th>Criteria</th>
<th>f</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Internal features</td>
<td></td>
</tr>
<tr>
<td>Plot</td>
<td>Not being adventurous</td>
<td>(1B, 3G, 12B, 14B)</td>
</tr>
<tr>
<td></td>
<td>Creating anxiety</td>
<td>(3G, 4G, 8G, 10B)</td>
</tr>
<tr>
<td></td>
<td>Not being realistic</td>
<td>(2G, 5B, 13G)</td>
</tr>
<tr>
<td></td>
<td>Being boring</td>
<td>(11B, 3G, 13G)</td>
</tr>
<tr>
<td></td>
<td>Written as fairy tales</td>
<td>(2G, 12B)</td>
</tr>
<tr>
<td></td>
<td>Not being entertaining</td>
<td>(13G)</td>
</tr>
<tr>
<td></td>
<td>Having unsolved problems at the end</td>
<td>(11B)</td>
</tr>
<tr>
<td></td>
<td>Having an unexpected ending</td>
<td>(7B)</td>
</tr>
<tr>
<td></td>
<td>Not having nice characters (personality)</td>
<td>(6B)</td>
</tr>
<tr>
<td></td>
<td>Having male characters</td>
<td>(9G)</td>
</tr>
<tr>
<td>Language and expression</td>
<td>Being too easy to read</td>
<td>(2G)</td>
</tr>
<tr>
<td>Characters</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illustrations</td>
<td>Not having beautiful illustrations</td>
<td>(5B)</td>
</tr>
</tbody>
</table>

As seen in Table 2, the students’ responses were primarily focused on the internal features of the stories including the plot, characters, and language and expression. Additionally, in one instance, illustration was listed as a reason and feature for one student’s choice of least favourite books. Importantly, the students’ answers yielded that plot, characters, and the language and expressions were the main determinants behind their choices. In terms of plot, four students did not like stories which were not adventurous or created anxiety. For example, student 3 (Girl) stated, “Because, it is a bit boring for me. I like exciting things”. Student 1 (Boy) did not like the book titled, “A Day in the City”, and his reasons were, “There were not too many different events and adventures”. The reason stated by Student 12 (Boy) was, “It’s a little more fairy tale, there is no action”. In terms of creating anxiety, Student 10 (Boy) reflected that he did not enjoy reading, “Wind and Rainbow”. His reason was stated as, “For example, something is happening, it is raining on the railing, it seems like it is falling, so I don't like it”. Thus, he alluded to not liking fear and tension. Student 3 (Girl) also added, “For example, when there are bad things like this, it is beyond action, tension, and horror. I mean I do not like them”. Similarly, Student 4 (Girl) did not like “Voracious Crow”, and her reason was, “Eventually he swallows someone (a person). I do not like such books”. Additionally, three students stated that they did not like boring stories. A girl and a boy stated that they did not like fairy tales. Whereas one girl did not prefer reading stories that are not entertaining, and one boy did not like the end of a story because it ended with unsolved problems. Student 11 (Boy) did not enjoy reading the book titled, “Colourful Chicks”, and stated that, “It was a little bad for me, it was boring, in the end
they can’t find a solution for the chicks, it was boring for me”, while another boy did not like a story because it ended unexpectedly.

In the third study question, the students’ were asked about the features of their favourite books. For example, the students were asked to think about their favourite book and explain the features of that book that constituted it being their favourite book. They were also informed that they could consider books that they have previously read and/or owned at home. The responses provided by the students to this question are presented in Table 3.

Table 3. The Features of Students’ Favourite Books

<table>
<thead>
<tr>
<th>Features</th>
<th>Criteria</th>
<th>f</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internal features</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plot</td>
<td>It should be funny</td>
<td>(1B, 5B, 6B, 12B)</td>
</tr>
<tr>
<td></td>
<td>It should be adventurous</td>
<td>(1B, 3G, 12B, 14B)</td>
</tr>
<tr>
<td></td>
<td>It should be realistic</td>
<td>(2G, 6B, 13G)</td>
</tr>
<tr>
<td></td>
<td>It should be entertaining</td>
<td>(5B, 7B)</td>
</tr>
<tr>
<td></td>
<td>It should be imaginative</td>
<td>(2G, 6B)</td>
</tr>
<tr>
<td></td>
<td>It should include magic</td>
<td>(3G, 8G)</td>
</tr>
<tr>
<td></td>
<td>It should be informative</td>
<td>(7B, 14B)</td>
</tr>
<tr>
<td></td>
<td>It should have village settings</td>
<td>(4G)</td>
</tr>
<tr>
<td></td>
<td>It should be interesting</td>
<td>(14B)</td>
</tr>
<tr>
<td></td>
<td>It should have some sorrow in it</td>
<td>(13G)</td>
</tr>
<tr>
<td>Characters</td>
<td>It should have good character development</td>
<td>(3G, 9G, 14B)</td>
</tr>
<tr>
<td>Message</td>
<td>It should have a meaningful message</td>
<td>(8G, 10B, 14B)</td>
</tr>
<tr>
<td>Language and</td>
<td>It should not have grammatical mistakes</td>
<td>(10B)</td>
</tr>
<tr>
<td>expression</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cover</td>
<td>It should have an attractive cover</td>
<td>(3G, 9G, 10B, 11B, 15B)</td>
</tr>
<tr>
<td>Length</td>
<td>It should be long</td>
<td>(5B, 9G, 11B, 13G)</td>
</tr>
<tr>
<td>Illustrations</td>
<td>It should have bright and attractive illustrations</td>
<td>(9G, 10B, 15B)</td>
</tr>
</tbody>
</table>

As seen in Table 3, students’ responses again were focused both on the internal and external features of the storybooks. The most popular category was found to be plot. Four boys stated that one of the features of their favourite book was that it was funny. Student 1 (Boy) stated that books should have, “action and funny stuff”. While Student 5 (Boy) stated a good book is, “A long book, a funny book, and a fun book”. Similarly, Student 12 (Boy) mentioned, “There must be action in it, there must be something like comedy”. Additionally, three boys and a girl liked adventure, whereas two girls and a boy preferred a realistic plot. For example, Student 7 (Boy) states, “There should be entertainment, there should be informational things in it. It gives us a lot of information, like “Little Leo”. Like “Little Wolf”. They give us a lot of information. For example, “Voracious Crow” gives information so that we should not be voracious”. Being entertaining and informative was stated twice by two boys, while two girls stated that having magic in books makes them their favourites. For example, a girl and a boy mentioned that their favourite stories were imaginative. While one boy liked interesting stories; a girl liked sad stories, and another girl mentioned she preferred stories which took place in village settings. The students also mentioned characters, messages, and language and expression as internal categories that they paid attention to when determining their favourite books. In terms of characters, there were three students who stated that books should have good character development. In other words, they would like to learn about their characters’ appearances, behaviours, dialogues, and most importantly their motivations in the stories. According to three students, stories should provide a meaningful message. For example, Student 8 (Girl) commented on the book, “The Rabbit and the Turtle”, and said she liked that book, “Because everyone can count on each other’s speed, there is losing and there is winning. But that rabbit can sleep. He’s always showing off. I mean, he says he can’t cross me after all, but the turtle passes him, and he reaches the finish line…. If it were me, I would choose the “Bean Tree”. Because of that tiny magical thing… I think it’s not right for him to go
to the top from a tiny bean and get that golden egg laying chicken. It feels like stealing. That’s why I choose “The Bean Tree” because it tells you not to steal anything and not take anything without permission”. So, for her the important thing was the message provided within the story. Only one boy mentioned that good quality book should not have any grammatical mistakes. Students also listed three external features such as cover, length, and illustrations of the books that they paid attention when determining their favourite book. For example, cover was the most popular category, and 1/3 of the students stated that their favourite books had an attractive cover. Four students stated that books should not be too short, and according to three students books should have bright and attractive illustrations.

In the final research question, it was investigated which book was chosen as the most favourite children’s book among all of the participating students. Analysis of students’ book scoring forms revealed that the book which gained the highest score from the students was “What Happened in the Forest? (Ormanda Neler Olmuş?)”. This book consisted of 30 pages and of those there were eight pages which had only illustrations and no text. The story had the total of 65 sentences and the average number of words per sentence was eight words.

The book which gained the lowest score from the students was, “The Wind and the Rainbow (Rüzgar ve Gökkuşağı)”. This book consisted of 15 pages and one page included illustrations only and no text. The story had the total of 170 sentences with an average number of words per sentences at seven words.

Table 4. The Physical Features of the Most Liked and the Least Liked Books

<table>
<thead>
<tr>
<th>Title of the book</th>
<th>The total number of pages</th>
<th>Pages without print</th>
<th>Total number of sentences</th>
<th>Average number of words per sentence</th>
</tr>
</thead>
<tbody>
<tr>
<td>What Happened in the Forest? (Ormanda Neler Olmuş?)</td>
<td>30</td>
<td>8</td>
<td>65</td>
<td>8</td>
</tr>
<tr>
<td>The Wind and the Rainbow. (Rüzgar ve Gökkuşağı)</td>
<td>15</td>
<td>1</td>
<td>170</td>
<td>7</td>
</tr>
</tbody>
</table>

Therefore, when the physical features of the two books were compared, it was recognised that the students preferred longer books (in terms of page numbers), but also did not want to read too much text per page. In terms of content, in “What Happened in the Forest?” it was revealed that adventure, courage, family and happiness, and power of being together were mentioned, as well as the importance of animal characters being included within the story. Whereas in the book “The Wind and the Rainbow”, which the participants liked the least, the events remained abstract to the children and the characters were not familiar people and/or well-intentioned characters. Additionally, the animals that students prefer seeing as main characters within books, in this case, happened to cause the children to dislike this book.

CONCLUSION AND DISCUSSION

It was shown in the findings of this current study that the participating students’ were most impacted by the characters of the stories when determining their favourite storybooks. In regard to the characters of the stories, students provided 12 responses that were listed under three sub-categories; having attractive characters, animal characters, and seeing characters with good personalities. As educators, we need to remember that students learn values such as truthfulness and benevolence through the characters within children’s storybooks. For this reason, it is important to provide books to students that have exemplary characters, which may aid in helping the students’ to develop the appropriate personality traits. Similarly, in a study with 3rd and 4th grade students, Erdem (2012), finds that students like characters in children’s books which are funny, beautiful, kind-hearted, adventurous,
cute, and brave. In another study that examines the views of 28 primary school students regarding children’s books, Altunkaynak (2018), finds that students prefer to see superheroes, cartoon characters, child characters, and famous people in the books they read. Furthermore, the students also stated that they want the characters in books to be intelligent, curious, strong, good, hardworking, and cheerful as well as they do not want to see any bad, stingy, and/or arrogant characters within these books.

In terms of the features that the participating students stated they liked in books, they mostly mentioned adventure, action, and humour. It is also shown in research regarding children’s literature that students enjoy reading books which have an interesting plot and include action and adventure. For example, in a study conducted with a total of 348 primary school students, Gökçe (2012), finds that the books students read the most are about adventure, science fiction, humour, detective stories, and are emotional. In another study conducted with primary school students from the 4th and 5th grades, students state that the most important features in books that they read or will read is that they should be fun, adventurous, and exciting (Kartal & Çağlar Özteke, 2012).

Additionally, the participating students in this current study mentioned that the books which they liked the least did not include adventure, were boring, or were written as fairy-tales. It is also shown in related literature that students enjoy reading about adventure and friendships more than fairy-tales. In a study with 4th graders, Haynes and Richgels (1992), find that girls’ favourite subjects are family and things about growing up, while boys prefer to read about adventure, space, science, and sports. For elementary school students, it appears that the topics from the most preferred to least preferred in the books they read are friendship, family, adventure, science fiction, religious issues, animal love, and nature consciousness (Altunkaynak, 2018).

When it came to the features of good books in this current study, the participating students mentioned that good quality books should be fun to read as well as should have adventure and humour within the plot. Similarly, Tekşan, Acar and Yiğit (2012), investigate the characteristics of children’s books that are most liked by children. It is shown in the results of their interviews with 12 children, that children prefer fantasy books with adventures and that they want books which create curiosity and have a happy ending. Additionally, children prefer extraordinary characters in books who know about everything, and they often want to include the element of fear within books. It is also concluded in this past study that children preferred books with fewer pages. On the contrary, a majority of the students in this current research mentioned not liking the element of fear and/or anxiety within the books that they read and stated preferring books which have more pages.

In other past research, Clark and Foster (2005), investigate the views of 8000 primary and secondary children in the United Kingdom regarding children’s books and find that most children enjoy reading books about adventure, comedy, and horror/ghost stories. Kauffman (2005), analyses which story elements 3rd grade students find important in determining whether they like or dislike a story. Thus, students read the summaries of nine stories and are asked to write a reflection about whether they would like or dislike these stories and to include their reasons for their preferences. The students’ responses are coded under five categories such as plot, character, theme, setting, and other. It is shown in the results that students use different story elements to decide whether or not they like or dislike a story. For instance, character and theme are the most popular two categories they mention regarding stories which they like. On the other hand, students mostly mention plot as the reason for not liking a story. It is also recognised that the stories which are most liked by the students, focus on friendship and appreciation.

The second most popular answer provided by students in terms of which features make a book their favourite was that the story is humorous. It is shown in other related research, that having humour in students’ storybooks makes the books more favourable, makes learning fun, and reduces anxiety. For instance, in a study conducted with 22 Turkish teachers, it is stated that humour is effective in motivating students to focus on the lesson as well as concretising the knowledge they
learn. Additionally, according to teachers, humour can aid in making a lesson be more out of the ordinary by engaging the students’ creativity and the participation through ridiculous actions (Aydın & Kitiş, 2012). While Loomans and Kolberg (2002), also state that humour has an effect of lowering anxiety as well as reducing tension, depression, and stress. Ersanlı (2010), also supports this notion by saying that the presence of humour within texts, positively affects students’ motivation regarding the learning process.

Besides the internal features of books previously discussed, participating students in this current study also mentioned a variety of important external features of their favourite books which included having attractive covers, beautiful illustrations, and length of a book. Similarly, in the study by Tekşan, Acar and Yiğit (2012), children want books to include interesting pictures and illustrations on the inside of the book as well as on the book’s cover. Having books with interesting pictures and illustrations is important for motivating students when choosing a specific book to read. Furthermore, regarding having well-illustrated books, Brookshire, Scharff and Moses (2002) as well as Strasser and Seplocha (2007), argue that to get children’s attention of specific picture books, the pictures and illustrations are as important as the text. Additionally, illustrations are not only necessary for attracting students’ attention, but also help children to learn about various subjects and concepts introduced within the books (Strasser & Seplocha, 2007).

Thus, students in this current study reflected on having attractive covers as one of their main criteria in determining their favourite books. Similar findings are observed in other past studies, for example, McNair (2011), investigates the book choices of 10 African American kindergartens through 2nd grade students and their parents, and finds that they primarily pay attention to the titles and book covers when selecting books. While in another study conducted with a total of 348 primary school students, the students state that they are influenced by the book cover as well as by their teachers and friends when selecting a book to read (Gökçe, 2012).

According to Güleryüz (2006), the books chosen for children to read should not be too long. Similarly, Stebler (2014), states that although children in the 6 to 8-years-old age group have already learned to read, their attention span can be finite, so children’s attention may wane when they read longer texts. Therefore, in general, the maximum recommended number of pages for young readers is 32 pages on average (Strasser & Seplocha, 2007). However, the students who participated in this current study stated that they preferred to select books which were longer.

Finally, it was determined in the findings of this current research that the book “What Happened in the Forest?” was the most favourite book of the participating students. This was actually an expected result because according to Karatay (2014), love of nature and animals is a highly preferred reading subject among children between the ages of 7 to 9-years-old. Additionally, other reading subjects preferred by this age group are people, extraordinary events, and situations which include travel. Again, this is similar to past research, for example, in Karakuş’s (2006) study, it is determined that the most preferred reading subjects of primary school students are adventure, family, and love. Furthermore, Yıldız (2009) finds that primary school students prefer books which include adventure, family, heroism, and humorous subjects.

**RECOMMENDATIONS**

There are several recommendations that can be provided based on the research findings of this current study as well as the participating students’ opinions regarding their favourite books. For example, a majority of the students mentioned that books should have bright and attractive covers. Also, books to be prepared or selected for children should be in accordance with the characteristics of their developmental period. Additionally, the concepts used in books as well as the events and situations described should be appropriate for children’s interests and vocabulary. Furthermore, concrete concepts should be included instead of abstract concepts and children’s books should have
vivid and colourful pictures. In this current study, the participating students also mentioned that good quality books should have interesting and realistic pictures or illustrations.

Children’s literature should have characters that students can relate with or like to read about, such as, children characters and/or animal characters. Also, children’s stories should include humour and mystery within the plot. Importantly, humorous elements which develop the children’s imagination, questioning, and critical thinking skills should be included. In this current study, the students also mentioned that they do not enjoy reading too much text on each individual page.

Another important recommendation is that teachers and parents play an extremely important role in choosing books which are suitable for children’s cognitive and affective development, interest, and curiosity. As a result, teachers and parents should pay attention to students’ interests when choosing books for them. Additionally, children’s literature has many positive effects and can be a very comprehensive resource for teachers, which puts more importance on the different tasks of educators. Therefore, teachers need to know what makes up quality children’s literature, and at the same time, they should consider the interests and development levels of their students when choosing books for them. Furthermore, the teachers’ archives should be rich, and they should also keep up with current and newly released books. Thus, in light of the results from this current study, it is also recommended that the authors of children’s literature should keep children’s views in mind to meet what are ultimately the interests and expectations of their readers.

REFERENCES


Parental Perceptions to Outdoor Activities

Mehmet Mart
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Abstract

The importance of outdoor activities for children should not be overlooked, and teachers and parents as stakeholders have an influential role in providing learning opportunities (Elliott, 2015). Teachers are dependent on parental reciprocity because of potential for harm (Maynard, 2007), and parents can limit activities because of various reasons such as traffic, weather and getting hurt (Cevher-Kalburan, 2014; Yılmaz, 2016). Therefore, identifying parental perceptions of outdoor activities is a significant aspect of supporting children’s opportunity to engage in them. In this research, semi-structured interviews were used to collect data, as a way to understand participating parents’ views in detail (Fife, 2005). Data collection was carried out by the author and NVivo 12 software programme was used to analyse data from 30 participants. Six main themes emerged from the interview questions in the data analysis, which are presented in this paper. While participating parents overall were positive about promoting outdoor activities both at out-of-school and in schools, their preferences for their children were mostly for indoor activities. Thus, there was conflict between what they claimed for outdoor activities and what they most preferred for their own children. This apparent tension suggests the need for further research.

Keywords: Outdoor Activities, Parents, Perception, Early Years

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INTRODUCTION

“The outdoors is a natural learning and teaching environment for young children and is one in which most children feel settled and capable” (Bilton, 2010, p. 1). This statement prompts a consideration of outdoor activities as a way to widen children’s opportunities. Outdoor activities are an important part of children’s lives as they are instrumental in “promoting children's wellbeing and development” (Brussioni, Ishikawa, Brunelle, & Herrington, 2017, p. 139) because they offer a wide range of opportunities (Azlina & Zulkiflee, 2012). For example, providing children with opportunities for outdoor activities enables them to increase physical movements and competence (McFarland, Zajicek, & Waliczek, 2014) as well as supporting cognitive, physical, social, and emotional development (Azlina & Zulkiflee, 2012; Barton, 2006; Davies, 1997; Humberstone & Stan, 2011; Kuo, Barnes, & Jordan, 2019; Waters & Maynard, 2010) and health (Clements, 2004). When these aspects of development are combined, children’s understanding and exploration skills are supported as well (Bento & Costa, 2018). Outdoor activities can provide holistic development opportunities for children through hands-on experiences and being active players. Children are also able to reflect various abilities and notion outdoors, which may not be possible indoors (Bento & Costa, 2018). Coates and Pimlott-Wilson (2019) highlight children’s view that they have contrasting emotions between being in classroom and in outdoors. Therefore, having opportunities to access outdoor areas and providing outdoor activities are essential for children, and such activities are generally chosen by children according to their imagination and interest (Sandseter & Lysklett, 2017). The context of Turkey is quite different than general conditions around the world. In the school context of outdoor activities, play and science activities are the activities most conducted in school gardens by teachers (Mart, Alisinanoğlu, & Kesicioğlu, 2015). In addition to this, field trips are explained as one of the described activities in preschool education programme (Milli Eğitim Bakanlığı, 2013) to be performed by teachers in Turkey instead of having nature-based play and activities.

However, as children depend on adults either in schools or at homes, access to outdoor areas are mainly controlled by adults. In school contexts, a support for engagement and joy of children in active play are the main principles of teachers, as well as being intuitive and encouraging for children (Bjørgen, 2015). Teachers are considered as providing those activities within formal education. As early childhood teachers, supporting children’s development and learning are main aspects to be considered (Davies, 1997). Thus, “…primary-aged children accompanied by adults, in order to try out ‘hands-on’ learning experiences” (Elliott, 2015, p. 723). Therefore, “risk was also raised as a concern: teachers were afraid that while working outdoors children might come to harm and were worried about the possible responses of parents and others if an accident occurred” (Maynard, 2007, p. 306), so areas should ensure safety as being constructed considering traditional components (Tuuling, Ugaste, & Öun, 2015, p. 26). In this case, the Turkish context accommodates field trips in the basis of outdoor activities (Millî Eğitim Bakanlığı, 2013) and some extent of activities at school garden (Mart et al., 2015). Also, “weather conditions and possible parental reactions may prevent teachers to implement outdoor activities throughout their daily schedule” (Yilmaz, 2016, p. 427). In this case, teachers’ options depend on various aspects such as facilities they have and parental concerns. Yilmaz (2016) furthermore underlines the necessity of informing parents about the importance of some outdoor activities like field trips.

It is important to consider the role of parents having a decisive role on children’s possibilities to engage with a variety of activities both at home and at school contexts. In this case, parents, in particular mothers, adopt approaches that confine children’s activities like risky play by virtue of their concerns for risky circumstances (Brussoni et al., 2018). Children are having less time outdoors than their parents had; limited by parents’ concern for safety aspects (Dealey & Stone, 2017; Yilmaz, 2016). Children and parents can have distinct views on the appropriateness of outdoor space (Waller, Sandseter, Wyver, Ärlemalm-Hagsér, & Maynard, 2010) but parental aspects can play a role as limiting factor (O’Brien, 2009; Skar, Gundersen, & O’Brien, 2016). Parents are concerned with following aspects: “… traffic, ill-intentioned strangers, kidnapping and injures” (Cevher-Kalburan, 2014, p. 114). In addition to such issues, inadequate time for parents to accompany their children leads
them to restrict outdoor play as well (Davies, 1996). This is because of some restrictions, which are indicated by Cevher-Kalburan’s (2014) study as inadequate playgrounds, lack of green spaces, traffic, fear of stranger danger and so on. Beside this, parents can have negative reactions to children’s dirty clothes or being wet because of outdoor activities (Davies, 1997; Yılmaz, 2016), so “listening to an adult may slow a child down” (Smith et al., 2014, p. 569). In other respects, the limitation of spaces leads adults to have only one type of outdoor activity, which is field trip. This is because field trips are based on to visit museums, science centres and so on (Avcı & Gümüş, 2019), so both teachers’ and parents’ preferences are in favour of field trips to closest places.

Given that parents are likely to go out with their children for predetermined and structured activities (Skar, Gundersen, & O’Brien, 2016). These concerns and the lure of computer games lead many children to stay inside and to have indoor play (Skar et al., 2016). To explore variations in these attitudes, Fjørtoft (2001) conducted research about the socio-economic and educational status of parents, and their occupation to identify any impact on outdoor activities, but found no differences. As there is no specific demographic identification on limiting aspects, the child development and opportunities to have activities outside should be promoted by parents (Yılmaz, 2016).

In light of above literature, it is important to address what parents think about outdoor activities in terms of parents’ safety concerns, approaches and understanding of outdoor activities, so the research question is asked: What is the perception of parents with children attending kindergartens towards outdoor activities?

**METHODOLOGY**

This research was designed as descriptive research methods in order to identify parents’ present approach to outdoor activities. This is because descriptive research aims to characterise the circumstances and a feature of case or the association between the case and circumstances (Merriam, 2009). Semi-structured interviews, one of the descriptive research methods, enables the interviewer to prompt the conversation with the participants so maintaining the direction of the process towards the chosen focus of the research (Fife, 2005). As this research is based on parents’ approaches to outdoor activities, semi-structured interviews provided an in-depth understanding about the topic. Therefore, semi-structured interview questions were developed by the researcher. Then, five different experts’ views were obtained about the interview questions, and the questions were re-structured considering their feedbacks.

**Sampling**

The sampling group of the research was consisted of parents with a child attending a kindergarten chosen from three main districts of Konya (Karatay, Meram and Selçuklu). Before starting data collection, some schools from each district were contacted to get in touch with parents. After a few parents responded to the invitation with a confirmation they were willing to take part, they were asked to invite other parents to take part in the research. A snowball sampling method was used to identify the participants, which is about finding one person interesting in research, and who refers someone else having similar interests (Biernacki & Waldorf, 1981; Creswell, 2007). Such snowball sampling was used to reach 10 parents from each district, and 30 parents were interviewed in total. Participating parents were “…those who happen to be interested from a particular school, or those attending courses” (Cohen, Manion, & Morrison, 2011, p. 116). As a result of the method of sampling, all participants had a child/children attending a preschool in one of three main districts. Only one of the participants was male, and 29 of the participants were female. The participating parents had different educational and social backgrounds, so they have been holding different degrees: high school, college, bachelor and master’s degrees, and nearly half of them was working in a regular job, and others were unemployed (was housewife). In the representation of data, each district labelled with a letter (A, E and H) and participants numbered named like A-1, A-2…, H-1, H-2 and so on.
Data Collection

A semi-structured interview method was used to collect data from parent, who had kindergarten age child. The data collection tool consisted of four personal information questions, seven main questions with sub-questions. In these interviews, personal information was about gender of participant, educational level of participant, employment status, and school type for the child. The main part of interview had two group of questions that one was about outdoor activities in home context, the other was about outdoor activities in the school context.

Via using the developed semi-structured interview questions, the data were collected by face to face interviews with parents in the fall term of 2019-2020 academic year. For the data collection, the following interview questions were asked:

- What do you think about outdoor activities both at home and school contexts?
- Have you considered any problems during outdoor activities?
- What do you think about your child/children’s play outside?
- How does outdoor activities affect children?
- What is your opinion for your child/children to play?

As the research is based on semi-structured interview, above questions were the initiating questions and they were followed by various sub-questions considering the responses of the participants.

Data Analysis

Interviews were transcribed for analysis as soon as interviews were completed. Then, the data were transferred into NVivo 12 software programme to analyse. To analyse data, thematic analysis was used, which is about interpreting people and activities (Creswell, 2012) via using themes emerged in connection with research questions. As it can be seen from the interview questions above, some themes were likely to arise from interviews. At the beginning of data analysis, there were around 24 emergent themes, and six of them were more prominent than others as well as being aligned with the research aims. Revealing the overall approaches of parents, the following six themes were considered in the data analysis: children’s approaches, parental feelings, parents’ safety concerns, parental perspectives to outdoor activities at schools, the impact of outdoor activities and parental preferences.

FINDINGS

The findings of the research covered different aspects of the participants attitudes regarding children’s outdoor activities out of school time with their families and parental perspectives to outdoor activities in the school context; so there were six different themes underlined by this research.

Children’s Approaches to Outdoor Activities

As a starting theme, parents’ thinking of children’s approaches to outdoor activities occurred from the collected data. This theme covers responses to whether the participating parents’ children like being in outdoors either at home or other places. 25 of the participants directly claimed that their children like being outdoor, but one of them said that his/her child dislikes outdoors, and likes being at home, and four of them responded as partly. One of general context, A-7 claimed that
He likes. He likes very much being outside and engaging with society. He likes enjoying with his friends and sharing something with his friends outside.

Another participant has some similar statements, H-6 stated that

She likes being outside a lot. She likes playing outside and sharing something with her friends. For example, she is keen to playing with ball, painting etc. in outdoor areas. She shares something like exampled activities as well as toys with her friends.

In addition to sharing, a few participants claimed children were eager to be outdoors, so as an example of this, E-5 asserted that

Yes, he likes outdoors. For examples, he wants to live in a house with garden instead of a flat. In summer times, we have a house with garden in our hometown, we go there to spend summer break. When we get back to here, he repeatedly claims that he wants to live in a house with garden. He likes outdoors a lot.

This example explains how children are keen to have a direct access to outdoor areas. Supporting this, another participant, E-8 stated that

Yes, she likes being outdoor. She likes being having outdoor activities more than being indoors, such as going to parks, riding a bike.

Contrary to other participants, there was only one example, who claimed that her child disliked outdoor activities. She, H-3, stated that

He hates being outside. He doesn’t want to go out. He really is. He is my third child. I have two daughters, and they like being outside, and they were outside all day from morning to evening. He is the third child, was born after two girls, and he doesn’t like going outside. He never says to go downstairs to play outside, or to go out etc. He hates outside.

She explained the case that his son has negative feeling to outdoor activities. On the other hand, four of participants claimed their children partly like outdoor activities. As an example of this situation, A-6 stated that

Partly, sometimes he like being outside a lot, but sometimes he prefers to be staying at home, and to play with his toys. If we go outside, he takes his toys with him. Thus, he likes spending time at home more.

Another supporting parent claimed that

He likes being indoor more than being outside. He likes outside as well, but it is only when I accompany him. He doesn’t request to go out, but he plays once I lead him out. Unless, he stays at home, plays at home.

As can be seen, most children like outdoor activities, only a few of participating parents’ children had a negative feeling. This theme exhibited the general approach to outdoor activities were favourable for children, but just a few had unfavourable or neutral approaches. As these statements were gathered from parents, it was important to consider parental feelings to outdoor activities.

Parental Feelings

Another emerging theme, which was also associated with an interview question, from research is about exploring parents’ perspectives to outdoor activities. Although there were some negative
aspects for the previous theme, the overall parental thinking was favourable to outdoor activities of children. As an example, E-5 claimed that

This one is the natural part of childhood. I mean children are unable to move freely when they are within walls, and unable to let off steam. Thus, they can’t develop independent movement abilities. I think this is inner feeling of them. In short, children should spend most of their time outside.

This exhibits general perspective to outdoor activities. However, there is a distinct concern of parents, which is about safety. In this case, H-4 claims that

There is no problem with me as long as I keep under supervision. I have concerns with buildings around us for outdoor activities. Well, there are lots of buildings around us, I prefer children to have free access soil to let off steam, walking over muds etc. which are joyful for them. As long as we are sure of safety, my children can do whatever they want.

This quotation underlines the importance of engaging with natural features and the necessity of parental supervision to have this engagement. Another parent, A-7, briefly explained that

It is nice for them to have outdoor activities. I support my child. I support my child as long as I am accompanying him. However, I never let him to go out alone.

Supporting these parents, E-6 asserted that

I am thinking that it provides wide range of opportunities, but I am going out with her as I don’t prefer her to go out alone. I definitely don’t allow her going out alone. I mean I don’t trust to safety of environment anymore. The events and news, we heard, push me to think like this. This is not about a trust issue with my child.

In light of these statements, it can be seen that although all parents feel favourably towards outdoor activities, some of them have concerns with safety aspects. However, there is no direct reference to any particular risky situation, so this approach stays as rhetorical but still limits outdoor activities for children. The following theme explores safety and risk in more depth.

Parents’ Safety Concerns

While parents were explaining their stance to outdoor activities, risk and safety aspects were questioned in detail. This theme occurred within the context of interviews and this is also mentioned by literature above. Ten participating parents considered their environment as safe but others raised concerns. The responses were equally seen through three districts of Konya. In terms of parents stating the environment as safe, H-4 claimed that

It is safe for me. Our securities work hard to ensure safety. However, I don’t leave my child in playground and stay at home. I am always behind my child to check. As I am always there, and as I don’t let my child to be alone, I feel it is safe as I am there with my child.

Another participant, A-8, stated briefly that

Outdoor areas are safe. We have no security issue.

However, other participants highlighted different aspects in terms of detrimental factors to safety. E-7 states that
Well. I think it is safe for now. Of course, there is a lack of green areas, and it is limited where we live. There are lots of high-rise buildings surrounding us. There are car parks near children’s playground for these buildings. Thus, it is little bit dangerous.

In this example, the safety concern was not about risky play of children, it is about exterior hazards and possessed physical conditions for the participating parent. A-4 highlighted human factors that

I don’t think it is safe. I mean we have a fear that people can hurt my child. Therefore, I don’t let them to play alone. I supervise them. I am conscious about external threat, so I don’t think it is safe enough, so I always accompany him.

This quotation underlines the participant’s concern to social environment for them. On the one hand, no participating parents mentioned a particular example for this. They explained their concerns as a probability. Supporting this argument, one of participants, E-3 explained this approach that

Actually, I think it is safe. However, it is completely up to my psychology, I don’t consider safe. Well it is more about my fears, for examples; cars pass through, people can be harmful or can snipe etc. Even my daughter is running around the apartment block, I chase her, and I think what if something happens when I don’t see her. Even sometimes I worry my children during their play like hide and seek. I think it is totally about me.

This person explains her concerns in-depth to analyse her behaviour. As it can be seen from various responses of the participating parents, there are different variables for the parents, and there is no concrete or authentic examples for risky aspects. To overcome of parental concerns for safety, there is a possible role for educators to reassure them. Thus, the following theme is about parents’ concern about outdoor activities at schools.

**Parental Perspectives on Outdoor Activities at Schools**

It is always necessary to understand parental approaches to outdoor activities at schools because their concerns can determine what is possible. In this study, parents were generally satisfied with what teachers do in schools as outdoor activities. From the examples given, usual outdoor activities are based on trips, and only a few examples contained activities in the school yard. There were also some critical statements from parents in terms of insufficient outdoor activities. A-4 stated that

They go for trips, and when they go for trips, she is happy with being her friends and she enjoys touring. They learn rules of society with such trips. Therefore, I am happy for this. I think the school organised trips and outdoor activities are pretty useful.

Supporting this statement, E-2 claimed that

My child attends this school for three years, and I am aware of they aim to conduct outdoor activities frequently. Especially, our teacher takes children outside when the weather is good and if there is an opportunity to do so. They are having activities and mostly trips, and they enjoy.

As this quotation shows, there is an understanding between teacher and the parent in which sustains the agreed approach to outdoor activities. Correspondingly, H-10 asserted that

I do want my daughter to attend, especially I really want her to attend trips or activities at school yard. Because of this, I always support them to do. Well, when she goes somewhere for a trip,
she learns a lot of things. I think that she expresses herself much better as having freedom during outdoor activities.

While these statements are revealing the usefulness and practices of schools for some participating parents, there are a few critical approaches to lack of outdoor activities. In this case, E-5 stated that

Well, I can say that children can go out at least twice or three times in a week all through the different seasons. This is my expectation from the school, but they don’t go out when the weather gets cold. I can explain this situation from other parents’ perspectives that they are not willing to let children to go out because of getting ill. This might be the reason for not to let children going out. However, in my view children can do outdoor activities at least twice or three times in a week. As a parent, I don’t think there will be problem.

This quotation underlines the importance of outdoor activities and acknowledges what prevents teachers from organising them. From the critical aspect, another participant, H-8 asserted that

I don’t think it is enough because there is no park, and security! As you can see, there is really small grass area, which is far away from the building, near exit and for all children. I mean parks are playground for children. There is no green area and sand pit. That grass area is already artificial [not natural] … there is no higher and lower places, so we do not have anything at our school garden. It is a complete empty yard. I mean it is not an actual school yard. However, trips are well … I am so happy trips, and I think that those activities are really useful.

As it can be seen from the quotations, the general attitude of participating parents was positive to implementation of outdoor activities at schools, but there were some concerns with lack of opportunities and safety aspects. This theme also shows the understanding of access to the outdoor as being mostly based on trips. In addition to parental positive perspectives on outdoor activities at school context, interview questions prompted parents to explain the impact of outdoor activities for children.

**The Impact of Outdoor Activities**

Another prominent theme from interviews was about the impact of outdoor activities on child development. The general opinion was that it had a variety of favourable impacts on children. A-5 stated that

… I think my son is kind of examining more and is noticing more. His sense of wonder has been developing … Certainly there is cognitive development. I suppose so. I mean if he sees leaves, bugs etc., he asks questions to understand. He learns always.

Supporting this participant’s statement, another participant, E-1 claimed that

The biggest impact of outdoor is physical development. Of course, social development is also in process in different outdoor environment. Socio-emotional development is influenced as well. Communicative skills are also enhanced during children playing together. As I said, cognitive development is more prominent because of lots of visual stimulus, and different stimulus around him. Also, it is about language development since having various noises. He actually learns more from nature. The colour of leaves and grass are learnt in nature.

This quotation reveals the impact of outdoor activities for children in every aspect such as various developmental impacts and learning opportunities. In addition to this participant’s expression, another one explained different opportunities, so H-1 asserted that
Well. I guess her self-confidence gets better because she plays herself when she is out, so she feels like she has adult roles. She walks around and uses slides herself. These make her really happy, and her development gets much better because of having self-control.

In addition to these statements, one of participants, E-8 underlined the engagement with nature that

In terms of developmental aspects, the engagement with nature leads children to think positively. Also, I believe that human is a part of nature because of its entity. Therefore, even parks are not enough for me, so I support children to play with mud and to build something with pinecones. I try to raise my children with this stance as long as I can do. In terms of development, counting on pinecones or sticks are related with her age, and supports both cognitive and psycho-motor development, which is non-negotiable. Also, I think that there are lots of impact of outdoor in terms of social development as well.

Overall, participating parents underlined general developmental aspects of outdoor activities, so this means that parents were aware of the positive impact of outdoor activities for children. Therefore, it is important to follow parents’ preferences as another aspect.

**Parental Preferences for Activities (Indoor vs. Outdoor)**

Although parents affirm outdoor activities at schools, comparison with parents’ choice for either indoor or outdoor activities is also important. While only two parents preferred outdoor activities without hesitation, 12 of participating parents have chosen both indoor and outdoor activities, and 16 of participants directly underlined indoor activities as the favoured activities. As an example of a preference for outdoor activities, E-5 stated that

Of course, I choose the activities out of classroom because all indoor activities can be proceeded outside if teacher wants, and being outside, being open-air space, is a huge advantage for children [in terms of their development]. 90% or at least 80% of indoor activities can be carried out outside. Even art-craft activities can be performed outside as carrying two tables for children.

Another supporting parent, H-7 claimed that

Outside is my choice. Indoor activities are nice, but activities out-of-classroom are much better, I think. They can see various things outside. For example, they can see animals and get recognize nature much better. Self-confidence of children gets better as having a close relationship with their friends. They can get socialise more. They can learn more. They do similar activities indoor but!

The common theme from these statements is the developmental impact of outdoor and the possibility to have the same activities as indoors. They believe there are wider opportunities outdoors.

Nearly half of participating parents drew attention to equal importance of indoor and outdoor activities, but during the explanation, they mostly defended indoors. For instance, A-5 stated that

Depending upon situations, both are required but I guess indoor activities should be a bit more. Children have more things to play indoor, more things to learn indoor. There are lots of materials as well, so there will be better learning [outcomes for children].

Correspondingly, H-3 explained that
Both are equal for me, I mean both type of activities should be there for children. However, I find indoor areas safer, and I prefer indoor for my child. When they go out, I feel nervous and anxious whether there is a safety problem like falling down etc. Therefore, I prefer indoor activities.

As this research is based on outdoor activities, parents perhaps wanted to show their concern for outdoor activities, but in the detail it appears that their positions were more favourable towards indoor activities rather than outdoors.

Just over half of participating parents, 16, directly mentioned indoors as their first choice. As an example of the participants advocating indoor activities, A-2 asserted that

Indoor is good. They can do more things inside. They are having fun outside, but it is not like indoor … Therefore, indoor activities are much better, which are well-designed, and those activities are applicable activities, so her hand muscles get improved.

This participant thinks the impact of indoor is better than outdoor activities. Supporting this, E-4 claimed that

Indoor activities. They can spend a few hours with painting etc in outdoors, but children can hold scissors to learn how to use, then can do painting indoor as well, so manipulative skills get developed during indoor activities, I think.

This participant considers indoor as covering everything can be done outside. Perhaps this is about lack of information provided to parents about what goes on outdoors. Another supporting statements of previously quoted parents, H-5 underlined the similar aspects that

Indoor. Indoor activities have more educational aspects. They can have trips outside, but indoor is much better. Children can learn lots of things during indoor activities but outdoors. Outdoors are likely to be visiting places.

In light of these statements, it is clear that the overall choice is for indoor activities as they believe in indoor activities being favourable for children’s learning and development. This is perhaps for more formal learnt skills such as scissors, hand muscles for writing and so on. These are all purposeful in adult terms rather than self-directed, social and creative activities outside.

**DISCUSSION**

Under this section, it is necessary to present collated aspects of themes to analyse the data in detail. In this case, there are parallel findings on children’s approaches to outdoor activities and parental feelings. This is because parents’ stance has an effect on children’s opportunities for outdoor activities (Obee, Sandseter, Gerlach, & Harper, 2020). This means that parents having a favourable attitude to outdoor activities can generate similar approaches for their children. This aspect is also correlated with McFarland et al.’s (2014) research that there could be a relationship between adult’s time spent outdoor when they were young and their approach for their children to play outside.

However, this relation between children’s approaches and parental feelings is likely to be influenced by safety issues around them. Parents’ attention to risk is a common factor that “children’s opportunities for risky play have eroded over time, limited by parents’ fears and beliefs about risk, particularly among mothers” (Brussoni et al., 2018, p. 1). The findings on safety exhibit the safety concerns of most of participating parents. Therefore, children’s outdoor activities are watched by parents or older parents (Cevher-Kalburan, 2014). Thus, parents aim to ensure safety for their children. This is directly related to parents’ sense of their neighbourhood and social area (Boxberger & Reimers, 2019). This can be one of limiting pressure on children’s outdoor activities (Skar et al., 2016). As this
is a general sense of safety concerns for parents, their concerns to outdoor activities may be different for the school context because of the variety of safety regulations for schools.

Parental approaches to outdoor activities at schools were mostly about explaining school trips and some of responses were about criticising school yard because of lack of opportunities for children. In this case, teachers’ designing, arrangement and practicing activities outside are restricted by lack of opportunities (McClintic & Petty, 2015). As most parents underlined trips at schools, teachers have parental support to organise such opportunities. This is because even trips can be difficult to organise because of a lack of parental support (Gürsoy, 2018). In this case, teachers’ and parents’ co-operation are required to extend occasions for outdoor activities (Jayasuriya, Williams, Edwards, & Tandon, 2016; McFarland & Laird, 2018) because any conflict between teachers and parents can cause a restriction on outdoor activities (Little, Wyver, & Gibson, 2011). This is contrary to previous research which identified that parents let their children to go school without appropriate clothes for outdoor so as children to stay inside (Olsen & Smith, 2017; Tuuling, Ün, & Ugaste, 2019). Schools of participating parents can achieve the difficult part of outdoor activities as organising trips to outside although they fail to provide regular outdoor activities within school yards. This is parallel to Cevher-Kalburan’s (2014) research that the most popular places (for outdoor play) are house gardens and the closest parks, but these places are used rarely.

In this case, this limited outdoor activities for children create disadvantages in terms of children’ joy and development. Another aspect was about parental thinking on the impact of outdoor activities. Generally there was an affirmation of the effect of outdoor activities for child development in terms of cognitive, social, language development and self-confidence. These aspects were correlated with previous research (see Barton, 2006; Humberstone & Stan, 2011; Kuo et al., 2019) as well as children having connections with nature (Kos & Jerman, 2013).

As parents had an assertive approach to impact of outdoor activities, parental preferences for activities were expected to be on the side of outdoor activities. However, the case was quite different than what is expected. The findings show that participating parents had preference for indoor activities. This could be the result of lack of information reassuring parents of the safety aspects at schools (Dillon, 2010). Therefore, these safety concerns constrain children’s play outside as participating parents mentioned: cars, stranger people etc. (see O’Brien, 2009). Parents’ approach to outdoor activities is explained by Little (2010) that parents who take risks are likely to be more easily persuaded that their children should have risky opportunities. The reason for restrictive approaches can also be the result of this situation as parents themselves may prefer not to take risks. However, parents may also be preventing their children’s chances to interact with others and equipment around themselves as well as pursuing own interest (Saharkhiz, Harring, & Witte, 2018).

CONCLUSION

The aim of this study was to identify parental perceptions towards outdoor activities in the context of Turkey. Early years children are depended on adults to have access to outdoor areas. As being the safety guardians of children, parents have decisive role on opportunities for activities at out-of-school times and during schools. From this research, six different themes emerged. In light of these themes, most children enjoy the outdoor activities because they are able to have control over their activities (Christiansen, Hannan, Anderson, Coxon, & Fargher, 2018). Most parents also have supportive arguments for children’s outdoor activities when considering the developmental impact (McFarland et al., 2014); although they have safety concerns which might limit children’s activities (Brussoni et al., 2018).

The participating parents demonstrated supportive attitudes to activities at schools, but lack of outdoor activities at schools has been underlined, which is correlated with Harper’s (2017) statement that parents have no concern as long as they are kept informed. This too seems to get in the way of the key statement that participating parents were aware of the developing impact of outdoor activities,
such as cognitive, physical, socio-emotional (Kuo et al., 2019). Although there was overall approach to impact of outdoor activities, their preferences were for their children to play indoors. This might arise because of insufficient information provided for parents on the plans for the activities because they require to be informed about the plans (Barton, 2006), thereby parents can comprehend the importance of outdoor activities at schools. As this research was conducted in one major city, the number of participants, and using only one type of method to collect data, the results are difficult to generalise; however, better information for parents is one of the aspects for educators to consider.

In summary, the general opinion of participating parents for five of the emerging themes were similar to each other, and they had a supportive role to outdoor activities with a few concerns. However, their responses to last theme exhibited a dilemma with their previous responses. In this case, as a researcher, I can remark that although parents have affirmative feeling to role of outdoor activities for their children, they have socially learnt preferences for indoor activities. In light of this research, further research is required to explore some points in more depth, which might be country-wide to generalise findings. However, this research indicates that: the concerns of parents should be addressed by educators; a formal schedule of timed outdoor activity periods for school should be included in the timetable (so that parental awareness to outdoor activities can be ensured); and parents in turn should reflect on the contradictions in their attitudes to outdoor activities so that their values can be reconciled.

REFERENCES


The Use of Educational Software in Teaching Initial Reading and Writing*

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Abstract

This research reveals teachers' views on the educational software used in primary reading and writing teaching process. The research was considered as qualitative research as case study. The data were obtained by interview and observation. The sample of the study consists of 26 primary school teachers who teach the first graders in the 2018-2019 academic year in primary schools in the central district of Niğde, Turkey. The selected teachers were chosen using simple random sampling method. In the research, semi-structured observation and interview forms were used as data collection tools. The data were analyzed by the content analysis method. It has been determined that educational software for students provides an advantage in terms of concretization of teaching, differentiation of activities, minimizing individual differences between students, giving attention to the lesson, giving them an opportunity to apply what is learned, addressing many different sensory organs in students, motivating and supporting students.

Keywords: Reading, Writing, Teaching Primary Reading and Writing, Educational Software

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INTRODUCTION

Technology is increasingly moving to influence our lives, because most of the activities are being conducted through technology. In a world mediated by technology that has become an integral part of our daily life, people are learning, working and having fun together. People now prefer to use tablets, phones and computers rather than traditional communication methods. (Haller, 2005). Technological changes are altering everything from the way people work; to the way they interact and spend their free time together. Information, communications and multimedia technologies have an impact on this change (Kellner, 2002).

Today, students take advantage of technology for entertainment, communication, and learning. In this period, students must have technology-rich learning environments in schools (Austin, 2004). In education, technology is a tool that helps teachers to embody information to create enriched and collaborative learning environments, to meet the needs of different learning styles, to support learning transfer, and to enable equal opportunities in education (Silva & Miranda, 2005; Osório & Machado, 2005; Romero & Silva, 2005). Computer technology helps children control learning experiences by providing concrete experiences (Papert, 1998). It also allows us to connect with other people, stores large amounts of data, gives us access and entertainment (Yelland, 2002).

The rapid development of computers that are a technology wonder, has also affected our education system in recent years. It has required some important changes to be made in our education system. The use of new technologies in education facilitates training activities by the interaction of more sensory organs than traditional methods (Yanpar, 2006). Children also support all their developmental areas for using computers to investigate questions, solve problems, explore and manipulate objects on the screen (Dodge, Colker & Heroman, 2003; Eryaman, 2007).

Information and communication technologies should be used as much as possible in the learning teaching process. The use of these technologies will enrich teaching strategies while also supporting students' learning. Students should be encouraged to take advantage of computer programs in gathering, organizing and classifying their data, in writing, editing and presenting their findings (MEB, 2017). Bacanak, Karamustafaoğlu, and Köse (2003) state that individuals should follow technological developments and know how to use them to make life easier for them. However, they emphasize that technology should be used in education and that information studies should be conducted to inform individuals about these technological developments.

Educational Software and Initial Reading and Writing

The fact that computers ensure active participation of students in education by taking into account the individual differences of students in the educational environment has brought the Computer Assisted Education Method into the agenda. Computer assisted education is a way of teaching that combines the principles of self-learning with computer technology, which is used as an environment in which learning occurs, which strengthens the teaching process and student motivation, and which the student can benefit from the self-learning speed. Computer assisted education can also be described as activities in which students interact with the computer programmed lessons, while the teacher acts as a guide and the computer plays an environment role. In computer assisted education, the computer is used as a teaching tool that assists the teacher by taking on some of the duties and also as an environment where learning occurs. When used in this way, the computer cannot replace the other components of the education system such as books, friends and teachers. The point that should be highlighted here is that the computer is a teacher-assisting tool like educational tools such as books, cyclopes, movies, etc. The computer can function as a teaching assistant and can make the teaching more student-centered (Gürol, 1990). Educational software used in computer assisted education has made teaching both more fun and facilitating teaching. These educational software tools are highly effective applications that enable multi-learning environments and drive students into lessons. These software tools are divided into types, as follows:
a. Tutorial Software: It is software that provides students with all the knowledge and learning activities they need based on specific learning objectives.

b. Exercise and Practice Software: It is software that enables students to retrain and practice subjects that have been discussed.

c. Similar Software: It is software that represents real life and situations or where realistic situations created.

d. Problem Solving Software: It is software designed to provide students with problem solving skills.

e. Educational Games: It is software that is created by providing game features to learning activities and aims to increase the motivation level of students (Baysal, 2013).

Educational software can be used in many lessons and is used effectively in teaching initial reading and writing. There are many educational software in our country within the scope of teaching initial reading and writing. “Educational Informatics Network (EBA)”, “Okulistik” and “Morpa Kampüs” are the most commonly used of them. Established through the Ministry of National Education, the EB is more complementary to the activities by registered members sending into the system, rather than one-on-one initial reading and writing teaching. On the other hand, “Okulistik” and “Morpa Kampüs” provide effective teaching with their applications at every stage of initial reading and writing teaching.

In initial reading and writing teaching supported by educational software, it is quite important to support the abstract letters for the children at every stage of the process through visuals and letter activities in order to ensure permanence. Educational software will help students find relationships between their reading, spelling, and meaning when learning sounds, letters, syllables, words, and phrases (Van Daal & Reitsma, 2000). In other words, effective use of technology and especially educational software has become a necessity to make initial reading and writing skills that will affect children's entire life and academic life more efficient. Information technology included with educational software is an important learning tool in teaching initial reading and writing, for many reasons, such as appealing visually and audibly to students in teaching initial reading and writing, making the classroom environments more fun, increasing attention, and enabling equal opportunities in education.

Reading skill is one of the most important skills that students should acquire in elementary education, as it will form the basis of students' lifelong academic success (Stevens, Slavin & Farnish, 1991). In order for children to acquire the reading skill in the desired quality, the factors affecting this skill need to be known and these skills need to be developed. Reading skill is essential for learning all the lessons. The person whose reading skills are not sufficiently developed will have problems and difficulties in learning other lessons (Zipke, 2007). For students with reading difficulties, educators turn to computers and electronic materials and see emerging technologies such as the Internet today as applicable tools in the general context of reading, writing and education (Kulik & Kulik, 1991). It is also said that computer technology has not been well-integrated in elementary schools, although computer use has very well documented benefits in the educational environment (Becker, 1998; Bauer & Kenton, 2005; Judge, Puckett & Bell, 2006; Dwyer, 2007). Few studies in the literature examine different integration methods, the scope of technology integration, or compliance of authorized software programs for teaching reading or writing in regular classrooms. Studies that examine general technology integration using software and hardware not found in most classrooms or specific software for intervention efforts in private education are more common (Meridith & Linda, 2009).

Educational software plays an important role in teaching initial reading and writing. The results of the researches show that the use of technology is beneficial in the "feeling the sounds".
recognizing sounds”, “creating syllables”, “teaching vocabulary”, “writing sentences” and "understanding what you're reading” stages of the initial reading and writing. Moreover, educational software reveals from the research results in which not only successful students, but also students who have problems with reading improve their initial reading and writing skills and contribute to them. In Yalçın (2006) study, it was concluded that a teacher who continued teaching initial reading and writing process with software had a positive effect on the students’ initial reading and writing skills. In Felix, Mena, Ostos, and Maestre (2017) studies, computer assisted education is effective in initial reading and writing of mentally disabled children. Judge (2005) investigated the effect of computer technology on initial reading and writing success of African American children and showed that children's access to computer technology both at home and in the classroom significantly increases their academic achievement, and that children's frequent use of educational software also increases their academic success. Rowe's (2007) study determined that computer assisted education is very effective in teaching symbols and signs in Social Studies. Black and Wood (2003) state that a computer can be a patient and repetitive teacher, provides students with many opportunities to learn and evaluate, and ultimately reduces anxiety and failure expectation. Computer technology, however, cannot be considered as a panacea in any way to educate children, since the real benefit of computer assisted education depends greatly on the quality and competence of the software (Lloyd, Moni & Jobling, 2006).

Teachers must actively and efficiently use educational software, which allows for the creation of multiple environments to enable students a significant skill such as reading and writing, as the use of technology in education is inevitable with some of the above-mentioned research results. For this reason, it is aimed to examine the use of educational software in teaching initial reading and writing in general for teacher views. For this purpose, the study sought answers to the following questions:

1. How do teachers include educational software in planning teaching initial reading and writing process?
2. What are the positive and negative aspects of the educational software used during teaching initial reading and writing process for students?
3. What are the positive and negative aspects of the educational software used during teaching initial reading and writing process for teachers?
4. What are the benefits of educational software in eliminating the difficulties encountered in teaching initial reading and writing process?
5. What are the teachers' recommendations on the use of educational software used during teaching initial reading and writing process?
6. Do teachers' views on the use of educational software coincide with the observation data obtained?

This research is expected to raise awareness about the use of technology in educational activities. It would be a correct step to consciously increase the use of technology in order to achieve more efficient initial reading and writing, which is known to be important.

METHOD

The study was planned and conducted as a qualitative case study. The case studies are based on the question 'how' and 'why' and allow the researcher to examine a phenomenon or event in depth that cannot be controlled (Yıldırım & Şimşek, 2006). In the case study, more than one data collection method is often required, in this way, a rich variety of data is attempted to be achieved to verify each other.
Observations and interviews were made in the research. The interview method is used as the shortest way to determine the knowledge, opinions, attitudes and behaviors of individuals on different issues and their possible reasons (Karasar, 2009, p. 166). Observation is defined in Turkish Language Association’s Dictionary (2018) as "Careful and planned treatment and examination of an object, an event or a fact in order to be known the characteristics of it". Qualitative research provides researchers with significant flexibility in creating and conducting research patterns. Developing new methods and approaches at every stage of the research and making changes to the research pattern are the main characteristics of qualitative research (Yıldırım & Şimşek, 2016, p. 52).

Working Group

Since the working group was easily accessible, 26 elementary school teachers (8 females and 18 males) who are teaching first-year pupils in the Central district of Niğde Province were established in the 2018-2019 Academic Year. Voluntary teachers with experience in their fields and use educational software generally during teaching initial reading and writing have been preferred when determining the working group.

Table 1. General Information on Teachers Interviewed

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Gender</th>
<th>Age</th>
<th>Service Year</th>
<th>Graduated Program</th>
<th>Educational Software Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>Female</td>
<td>50</td>
<td>(26-30)</td>
<td>Elementary School Teaching</td>
<td>Software-1, Software-2</td>
</tr>
<tr>
<td>T2</td>
<td>Female</td>
<td>38</td>
<td>(11-15)</td>
<td>Elementary School Teaching</td>
<td>Software-1, Software-2</td>
</tr>
<tr>
<td>T3</td>
<td>Male</td>
<td>46</td>
<td>(16-20)</td>
<td>Elementary School Teaching</td>
<td>Software-3</td>
</tr>
<tr>
<td>T4</td>
<td>Male</td>
<td>46</td>
<td>(21-25)</td>
<td>Elementary School Teaching</td>
<td>Software-1, Software-3</td>
</tr>
<tr>
<td>T5</td>
<td>Male</td>
<td>55</td>
<td>(26-30)</td>
<td>Elementary School Teaching</td>
<td>Software-1, Software-3</td>
</tr>
<tr>
<td>T6</td>
<td>Male</td>
<td>26</td>
<td>(1-5)</td>
<td>Elementary School Teaching</td>
<td>Software-3, Software-2</td>
</tr>
<tr>
<td>T7</td>
<td>Female</td>
<td>40</td>
<td>(21-25)</td>
<td>Other</td>
<td>Software-3</td>
</tr>
<tr>
<td>T8</td>
<td>Male</td>
<td>47</td>
<td>(21-25)</td>
<td>Elementary School Teaching</td>
<td>Software-3</td>
</tr>
<tr>
<td>T9</td>
<td>Male</td>
<td>28</td>
<td>(6-10)</td>
<td>Elementary School Teaching</td>
<td>Software-1, Software-3</td>
</tr>
<tr>
<td>T10</td>
<td>Male</td>
<td>33</td>
<td>(11-15)</td>
<td>Elementary School Teaching</td>
<td>Software-1, Software-3, Software-2</td>
</tr>
<tr>
<td>T11</td>
<td>Male</td>
<td>39</td>
<td>(16-20)</td>
<td>Other</td>
<td>Software-1, Software-2</td>
</tr>
<tr>
<td>T12</td>
<td>Male</td>
<td>53</td>
<td>(21-25)</td>
<td>Other</td>
<td>Software-3</td>
</tr>
<tr>
<td>T13</td>
<td>Male</td>
<td>25</td>
<td>(1-5)</td>
<td>Elementary School Teaching</td>
<td>Software-3, Software-2</td>
</tr>
<tr>
<td>T14</td>
<td>Male</td>
<td>45</td>
<td>(21-25)</td>
<td>Elementary School Teaching</td>
<td>Software-1, Software-3, Software-2</td>
</tr>
<tr>
<td>T15</td>
<td>Female</td>
<td>49</td>
<td>(21-25)</td>
<td>Other</td>
<td>Software-1, Software-3, Software-2</td>
</tr>
<tr>
<td>T16</td>
<td>Male</td>
<td>43</td>
<td>(16-20)</td>
<td>Elementary School Teaching</td>
<td>Software-2</td>
</tr>
<tr>
<td>T17</td>
<td>Male</td>
<td>39</td>
<td>(16-20)</td>
<td>Elementary School Teaching</td>
<td>Software-1, Software-2</td>
</tr>
<tr>
<td>T19</td>
<td>Female</td>
<td>45</td>
<td>(21-25)</td>
<td>Elementary School Teaching</td>
<td>Software-1, Software-2</td>
</tr>
<tr>
<td>T20</td>
<td>Female</td>
<td>52</td>
<td>(30+)</td>
<td>Other</td>
<td>Software-1, Software-3, Software-2, Other</td>
</tr>
<tr>
<td>T21</td>
<td>Male</td>
<td>48</td>
<td>(21-25)</td>
<td>Elementary School Teaching</td>
<td>Software-1, Software-3, Software-2, Other</td>
</tr>
<tr>
<td>T22</td>
<td>Male</td>
<td>35</td>
<td>(6-10)</td>
<td>Elementary School Teaching</td>
<td>Software-1, Software-3, Software-2, Other</td>
</tr>
<tr>
<td>T23</td>
<td>Female</td>
<td>29</td>
<td>(6-10)</td>
<td>Elementary School Teaching</td>
<td>Software-1, Software-2</td>
</tr>
<tr>
<td>T24</td>
<td>Male</td>
<td>29</td>
<td>(6-10)</td>
<td>Elementary School Teaching</td>
<td>Software-1, Software-2</td>
</tr>
<tr>
<td>T25</td>
<td>Male</td>
<td>38</td>
<td>(16-20)</td>
<td>Elementary School Teaching</td>
<td>Software-1, Software-2</td>
</tr>
<tr>
<td>T26</td>
<td>Female</td>
<td>33</td>
<td>(11-15)</td>
<td>Elementary School Teaching</td>
<td>Software-1, Software-2</td>
</tr>
</tbody>
</table>

Data Collection

In the study, a semi-structured observation and interview form was prepared in line with the opinions of elementary school teachers on the educational software in used during teaching initial reading and writing process by scanning the relevant area and with the opinions of field experts. The interview form contains 3 questions on teaching initial reading and writing process and 4 on the use of educational software. A semi-structured interview form was used to get the opinions of the teachers about the educational software used in teaching reading and writing. Prior to the meeting, brief information was provided on the interview and it was reported that the interviews would be recorded with the recorder. The interviews lasted between 4 minutes and 13 minutes. The interviews were usually conducted in the schools where teachers worked and in the teachers’ offices. The prepared
interview form contains 4 questions about how teachers guide the process of teaching initial reading and writing and 4 questions about how they incorporate educational software into the process.

**Data Analysis**

Content analysis method was used to analyze data from semi-structured interviews. Büyüköztürk et al. (2008) stated that content analysis is a systematic, repeatable technique in which some words of text are summarized by smaller content categories with coding based on specific rules. The main purpose of content analysis is to reach concepts and relationships that can explain the data collected. Thus, similar data are collected and interpreted within the framework of specific concepts and themes in a way that is understood by the reader (Yıldırım & Şimşek, 2016, p.227). According to Yıldırım and Şimşek (2016, p. 228), qualitative data are analyzed in four stages in the content analysis. These stages are as follows:

1. Coding of data
2. Finding themes
3. Editing codes and themes
4. Identification and interpretation of findings

The data obtained from the interviews were made twice a 6 week break, following the steps above. Convergent reliability between the two analyzes were calculated, in order to calculate the reliability of the analysis of the interviews. The following formula is used for the calculation of convergent reliability (Miles & Huberman, 1994, p.64):

\[
\text{Consensus + Divergence} \\
\text{Consensus} = \frac{\text{Consensus + Divergence}}{\text{Consensus + Divergence}}
\]

Here, the same codes obtained from the two analyzes are expressed as "consensus" and the different codes are expressed as "divergence".

The analysis revealed that the convergent reliability is between 72 percent and 100 percent. The overall average of the analyzes’ convergent reliability was 85.35 percent. The percentage of convergent reliability obtained as a result of this process is above 70 percent, it is considered reliable for the research (Miles & Huberman, 1994, p. 64). According to this prerequisite, it is seen that the percentage of convergent reliability obtained from the analysis of the research is quite high.

Qualitative research has taken measures to enhance the validity and reliability. In order to enhance the reliability of the data obtained from this study, the interaction process with the situation was increased and “data triangulation” was performed, meaning that multiple data collection methods were used in the collection of the data (Yıldırım & Şimşek, 2016, p.278). In order to increase the interaction process and data triangulation, observations and interviews were conducted in the research. 26 teachers were interviewed and 14 hours of observation was conducted with ten teachers selected from the interviewed teachers at different times and at different durations. The obtained data are presented in the "Findings and Comments” section, in support of each other.
FINDINGS

This part of the research contains quotations along with the themes, codes and categories created as a result of interviews with teachers based on the objectives:

As a result of the analysis, 14 of the teachers stated that they occasionally use educational software from time to time in teaching initial reading and writing process, 7 of them left planning initial reading and writing teaching process to educational software, and 5 stated that they actively use the educational software in teaching initial reading and writing process. Finally, it has been established that the majority of teachers use educational software from time to time in teaching initial reading and writing process.

Example of direct quote at the interview result:

"I include the educational software in my plan. So I make my plan and then I look at the educational software. I use visual elements, presentations or videos that fit my plan." T3

Figure 2. Planning initial reading and writing teaching process using educational software

Figure 3. Positive and negative aspects of educational software for students
As a result of the analysis, all of the teachers who participated in the interview stated that the educational software used in teaching initial reading and writing process had positive aspects for the students. Furthermore, 14 of the teachers stated that there were also negative aspects of educational software as well as the positive aspects. Meanwhile, 12 of the teachers stated that the software had no negative aspects.

The number of teachers who stated that the educational software used in the process benefited the student most from the point of "attracting attention" is 13. In addition, 6 teachers stated that the students benefited from the point of "addressing many different senses", 5 teachers "motivating", 3 teachers "embodying", 3 teachers "minimizing individual differences", 2 teachers "being supportive", 1 teacher "making difference". On the other hand, 1 teacher stated that it is beneficial in providing "the opportunity to apply what has been learned".

8 of the teachers who evaluated the educational software for students stated that the software caused "getting bored with misuse" on students. However, they also stated that educational software has negative aspects such as 1 teacher "getting bored with misuse", 1 teacher "being not applicable", 1 teacher "being time-consuming", 1 teacher "being paid", 1 teacher "inequality in distribution of activities", 1 teacher "being insufficient" and 1 teacher "ignoring the differences".

"I have a point of interest in educational software for students. This point is the storification of teaching sounds in software. The kids like it very much. It motivates them. As a negative side, I can say that there is not much weight for writing activities. There are reading-oriented activities. However, I also favor that writing activities are heavily involved. Children can be incomplete at this point." T9

![Figure 4. Positive and negative aspects of educational software for teachers](image)

Figure 4. Positive and negative aspects of educational software for teachers

As a result of the analysis, all of the interviewed teachers stated that the educational software used in the process had a positive aspect. However, there were some teachers who said that software had negative aspect. 16 of the teachers stated that educational software does not have a negative aspect. 10 of the teachers stated that the software had negative aspect.

The 23 teachers who evaluated educational software for the teachers stated that they benefited from "being supportive", 4 teachers "embodying", 4 teachers "attracting attention", 2 teachers "saving time", 1 teacher "classroom management" and 1 teacher "planning". The majority of teachers stated that educational software used in teaching initial reading and writing process offered them support in many different areas.
The 4 teachers who evaluated educational software for the teachers stated that they had negative aspects in terms of "misusage", 2 teachers "lack of content", 1 teacher "classroom management", 1 teacher "being time-consuming", 1 teacher "access to resources", 1 teacher "class level compliance", 1 teacher "being paid" and 1 teacher "limitation".

"Using ready-made activities in educational software rather than preparing the activities myself makes my work much easier. It makes our work much easier in terms of classroom management if we prepare for software activities in advance. On the negative aspect, when we are unprepared, it takes quite a while to open the software and find it, and the children can be distracted immediately." (T11)

Figure 5. The Effect of Educational Software on Solving Problems

When the analysis was examined, 25 of the interviewed teachers stated that educational software was effective in solving the problems encountered in teaching initial reading and writing process. One of the teachers interviewed stated that it had no effect on solving the problems encountered in the process.

18 teachers who believe that educational software is effective in solving the problems encountered in teaching initial reading and writing process, think that they solve problems in terms of "making teaching easier", 6 teachers "motivating", 4 teachers "attracting attention", 4 teachers "gaining diversity", 3 teachers "minimizing individual differences", 2 teachers "saving time", 1 teacher "embodying", 1 teacher "active participation", 1 teacher "building self-confidence" and 1 teacher "solving adaptation problems".

It is understood that educational software is most helpful in solving the problems encountered during sound teaching. At this point, it is thought that it facilitates teaching in a supportive way for teachers.

"As I just said, I can show through these programs which letter is written in which line range. We can immediately reflect those notebook lines on the board. For example, we will write the "a" sound. The program shows again and again how to write it at what intervals. In addition, we can show which images have these letters in their names. It makes our work easier in the stage of making the sound feel. It makes it easier for the child to grasp the sound. When I am working in Bingöl, I am going to tell the kids about oranges, soil ploughing and tractor. The kids have never seen any of this. They only have sheep in their lives. Now how will you describe the orange, the tractor to these kids? Would it be better to just show a picture of this, or if we open the software, if someone runs a tractor there and ploughs a field and grows oranges, which one is permanent? Of course, that three-dimensional image becomes more memorable." (T5)
When the results of the analysis were examined, 24 of the teachers have suggested that they correct some of the deficiencies regarding the use of educational software in teaching initial reading and writing. Two of the teachers did not make any suggestions regarding the use of these software.

Teachers who made suggestions regarding the use of educational software used in teaching initial reading and writing process suggested that, 19 teachers "content enrichment", 7 teachers "being free of charge", 6 teachers "increasing the amount of them", 2 teachers "informing teachers", 2 teachers "infrastructure development", 2 teachers made suggestions on "differentiation of expressions" and 1 teacher "simplification of interfaces". The majority of teachers stated that software is sometimes insufficient in terms of content and that studies should be carried out to enrich the content.

"We are upset that some software is paid. It should not be paid. Also, these software are limited. The amount of these software should be increased and the contents should be improved." (T20)

As a result of the observations, it was determined that the answers given by T23 and T26 during the interviews did not match with their practices in the course. T1, T5, T8, T9, T11, T17, T20, and T25 were observed to overlap with their answers given in the course. Examples of observation notes:

“It was observed that T11 left planning initial reading and writing teaching process to educational software. From time to time, however, the process has continued with his own activities. The process started with the efforts to make the sound of the software he used. T11 used the software from time to time during the process. He used some of the activities in software when appropriate. Occasionally, he continued the process in his own methods. T11 was quite successful at using educational software. It was possible to understand from the reactions of the students that he used the educational software in the departments for their purpose. T11 had some of the students do the applications in the software, though not all. However, there was no full participation. The students were very excited when the animations in the software were opened. Their interest in software was evident from their behavior.”
“T23 stated that she made the planning herself. However, no material was observed that she did the planning. She mainly followed the planning of educational software. T23 started the lesson directly using software. She followed all the steps in educational software. T23 effectively used educational software. She was quite knowledgeable about using educational software. It could be observed with the feedback given by the students that she did all the activities of the sound she was teaching correctly and effectively. During the period of observation, training was carried out continuously with the activities of the software. T23 enabled her students to participate actively in the lesson throughout the process. Students did all of the practical activities. The students became very happy when the educational software was opened and they competed with each other to do activities throughout the lesson.”

DISCUSSION, CONCLUSION AND SUGGESTIONS

At the point of planning initial reading and writing teaching process, interviewed teachers were grouped as those who use software actively in the process, those who use software from time to time in planning, and those who leave planning completely to software. As a result of the interviews, a majority of the teachers who have been grouped at the planning point of initial reading and writing teaching process, have been teachers who used software from time to time in planning. As Dwyer (2007) & Becker (1998) stated, most of the computer programs that elementary school teachers recommended to use for practice and application activities are open-ended and exploratory writing programs. In the study by Macaruso, Hook & McCabe (2006) and Macaruso & Walker (2008), significant improvements were made in reading skills in systematic computer assisted education used for students in kindergarten and elementary classes. Bauer & Kenton (2005), however, found that most teachers are familiar with computers, but did not use them in teaching applications or were using computers needlessly in the normal curriculum.

Teachers who evaluate the educational software used in teaching initial reading and writing process for the students stated that these programs benefit from embodying teaching, making difference in the activities, minimizing individual differences between students, attracting the students' attention to the lesson, giving the students the opportunity to apply what has been learned, addressing many different senses of students, motivating and supporting students. Teachers who evaluated the software used in the process for students stated that the software had lost its effect on students when it is used incorrectly. However, they generally stated that software has no negative aspect. McKenna & Watkins (1996) suggested that software used in the study increased students' interest in reading and improved their vocabulary positively. Yildiz (2009) in her study examined the effectiveness of multimedia applications, it was determined that the students of the experimental group read faster than the control group students and were more successful. As a result of the study conducted by Atalay and Anagün (2014), it was determined that information and communication technologies make it easier to attract students' interest and motivate them in the lesson, and also increase the success by addressing more than one sense of students. Similarly, Vilaseca (2013) revealed that computer software has positively affected children's reading and writing skills. In a study conducted by Gambrell, Morrow & Pennington (2000), initial reading and writing teaching process was conducted more fun by using CDs, animations, powerpoint presentations and web software developed for teaching initial reading and writing, making it easier for students who have difficulties in the process without time and space limitations. The results of the study conducted by Turunen (2019) showed that the use of computer assisted education method enriched children's reading and writing experiences. In the study conducted by Sinatra, Beaudry, Pizzo & Geisert, (1994), students were divided into two groups in which traditional methods were used and computers were used in the process. The findings suggest that the group in which the computer is used is more successful in writing skills than the group in which traditional methods are used. In the study conducted by Ponce, Mayer & Lopez (2013), students in the process were divided into two groups as the computer-based teaching method group and the traditional teaching method group. The research results showed that students in the computer-based teaching group improved their reading and writing skills more than students in traditional teaching group. In a study conducted by Bouck, Meyer, Satsangi, Savage & Hunley (2015), they concluded that computer-
based technology that can be used in the literacy process will facilitate learning for disabled students who have problems with the writing process. Research conducted by Ismail, Al-Awidi & Almekhlafi (2012) revealed that technology can play a crucial role in helping students learn reading and writing skills. These findings from the researches coincide with the findings of the study. However, Rouse & Krueger (2003) performed the reading and writing process through the computer program in their study. While the use of the computer program can improve some aspects of students' language skills, it is not observed that these skills turn into reading skills. This result does not coincide with the results of the study.

 Teachers who evaluate the educational software used in teaching initial reading and writing process for themselves stated these software enable embodying teaching, shortens the time to attract students' attention, is often supportive, saves time, makes planning and classroom management easier for them. Teachers generally stated that software used in teaching initial first reading and writing process does not have any negative aspect, but sometimes misusage causes problems. At the same time, it was determined that educational software provided great benefits to teachers in the process and helped to solve problems encountered in teaching initial reading and writing process. Again, it has been observed that these software generally do not cause any negative problems for students and teachers. This is in line with the results of Orhan’s (2007) research and the fact that technology is essential in teaching initial reading and writing process. The research conducted by Ismail, Al-Awidi & Almekhlafi (2012) showed that technology has helped teachers in connecting with students. In the study conducted by Wade-Stein & Kintsch (2004), educational software based on semantic analysis was developed to improve the writing skills of 6th grade students. In this developed software, students had the opportunity to receive instant feedback while practicing writing. Thus, software provided students with extensive writing practices without increasing the teacher's workload.

 It has been determined that educational software used in teaching initial reading and writing process is motivating and attractive for teachers and students, facilitating teachers' work and classroom management, making teaching tangible, ensuring students' active participation in the lesson and minimizing individual differences. These results are consistent with the study conducted by Reitsma & Wesseling (1998) that computer technology supports both teachers and students. Kablan's (2001) study is also in line with the results that presentations prepared with the powerpoint program can be used to increase the effectiveness of teaching initial reading and writing process, and that these activities are motivating and attractive for students. As a result of the research conducted by Eser (2015) has found that using technological tools in the classroom environment in educational processes makes the work of teachers easier. In the study conducted by Dietz, Ball & Griffith (2016), web-based educational software was used in training of individuals with aphasia (language disorder) who had problems in reading comprehension, and progress was made in understanding what they read. This result directly matches the results of the study.

 Teachers who participated in the interview stated that the software used in teaching initial reading and writing process was effective in solving the problems that occurred during the process. They stated that it solves the problems encountered especially in the letter teaching process and facilitates the teaching. They also stated that it eliminated the problems experienced in attracting students' attention, made it easier to make a difference in teaching and shortened the time to motivate students. Below are some of the relevant studies. The results obtained from these studies support the results of the study. However, in the study conducted by Ertem (2010), it cannot be said that the students in the experimental group were more successful than the control group students in terms of reading comprehension scores. In addition, Bay (2009) has concluded that students who use computers are more successful in understanding what they read than students who do not use computers. Çatak (2006) stated in the results of her study that the words and sentences in the texts prepared by focusing on the visuals are more easily embodied by the students and this provides ease in understanding what they read. The activities prepared with the powerpoint program were more attention-grabbing and therefore it was thought that the active participation of the students increased positively. As a result of
the study, it was determined that there was an improvement in students' reading and reading comprehension skills.

The teachers who participated in the interview stated that the educational software used in teaching initial reading and writing process had some deficiencies at some points. The teachers made suggestions for this. The missing and most suggestive point was that the content of the software should be enriched. At the same time, teachers stated that the number of software should be increased and should be free for everyone. In the study conducted by Williams, Boone & Kingsley (2004), it was emphasized that the prices of the software should be appropriate and its content should be relevant for the purposes.

The observations indicated that the answers given by majority of the teachers coincided with their practices in the lesson. Similarly, Ihmeideh (2009) concluded that pre-school teachers' beliefs about the use of computer technology are consistent with their perceptions of teaching practices.

Suggestions for the study are as follows:

- In order to use these educational software in teaching initial reading and writing process and in the teaching process of all other courses, studies can be made to eliminate the deficiencies in the technological infrastructure of schools.
- The number of software can be increased and the content of existing software can be enriched.
- These software can be provided free of charge in order to offer equal training opportunities to all.
- The interfaces can be simplified in order to ensure easy use of educational software and the quick access to the content, which is prepared for use in teaching processes.
- Teachers may be briefed on these software in order to use the educational software used in teaching initial reading and writing process effectively.
- New studies can be designed as experimental studies.
- The effectiveness of these software in different lessons can be investigated through new studies.

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Perceptions of ‘Best Friend’ as Expressed by Preschool Children in Turkey and in Sweden*

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Abstract

The research examines the concepts of ‘friendship’ and ‘best friend’ among preschool children (n=52) who live in different countries (Sweden and Turkey), with the aim of presenting their ideas about the concepts of ‘friendship’ and ‘best friend’. For this purpose, 52 children, 4-5 year olds (25 from Turkey and 27 from Sweden) participated in semi-structured interviews, the content of which was later analysed. A content analysis method included the identification of codes that could be used for comparison across the two populations through statistical analysis. The main results of our study show that, despite the fact that preschools are organized differently in Sweden and Turkey, children from both populations used prosocial behaviour and their perceptions about what a best friend is more similar between children in these different cultures than they are different.

Keywords: Early Childhood, Preschool Children, Best Friend, Friendship


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INTRODUCTION

Today’s increasing internationalization of many societies places high demands on people’s ability to understand and live up to the values that derive from cultural diversity (Skolverket, 2018). In this context, we ask the following questions concerning the concepts of ‘friendship’ and ‘best friend’ from a cross-cultural perspective: Do children have different concepts about what ‘friendship’ and ‘best friend’ can be? Does having a different cultural background determine how teachers and other staff who work with children at the preschool stage (as well as the children’s parents) entertain different ideas about potential differences between the child’s conception of ‘friendship’? We wish to examine what perceptions about ‘friendship’ children who live in Turkey and Sweden have. We are curious to discover whether any cross-cultural differences can be identified or whether, no matter what their cultural background may be, children are more similar to each other in this regard than previously known? The preschool context of the child’s development instantiates an important social- and cultural meeting place that should promote the child’s understanding of the value of diversity. An awareness of different living conditions and cultures can help to develop in the child an ability to understand and empathize with other people’s conditions and values.

The nuclear family, relatives, neighbours, teachers, and peers all create and inform the child’s environment. The relationships that are established with these adults and their peers are slightly different in structure. The relationships that the child establishes with peers progress in terms of a number of more ‘natural’ processes and give rise to different results. These different learning experiences with its peers provide support to the socialization process of the child.

After the immediate environment of the nuclear family, the first social environment that the child encounters is at kindergarten, and the first socialized group in which they are involved is their peers. Peer relations are generally performed in groups of individuals who share a similar age, similar levels of development, a similar social environment, and similar interests (Wellman, Phillips, & Rodriguez, 2003; Göliler, 2010). In order to interpret the understanding of the kindergarten children that instantiate our two population groups and the peer relationships that these children enter into, it is necessary to first identify the basic features of the preschool education programs in the two countries where our research data was collected.

The Swedish preschool curriculum (see Lpfö/18) is primarily informed by notions of democracy. One important task of this curriculum is to lay the foundation for (and establish) the values on which a democratic society rests. Furthermore, this curriculum follows UN Convention on Children’s Right. The values that the preschool environment should instil in each child include: “The inviolability of human life, the individual’s freedom and integrity, the equal value of all people, equality between the sexes and solidarity with weak and vulnerable.” At the preschool stage of their development, children should experience the feeling of being an asset to the group and that the group that the child is a member of is seen as an important and active part in child development and learning. Early childhood education at the Swedish preschool stage consists of a combination of learning and play, and a care for and fostering of fundamental values. Play is considered to be important for each child’s development, learning, and well-being by the curriculum (Lpfö/18). Teachers are thus tasked to provide support to children as they develop their own ideas and experiences in a collaborative environment (Puskas & Andersson, 2017).

The Turkish preschool education program was updated in 2013, and has become a more child- and process-centred program. In this new education program, principles such as democratic understanding, activities based on play, development of the child’s problem-solving skills and creativity, and the notion of children as respectful and self-controlled individuals are highlighted. Some of the other principles of the program which can be related friendship are the development of “feelings and behaviours of children such as love, respect, cooperation, responsibility, tolerance, solidarity and sharing” and the notion that “children should be encouraged to recognize themselves and others’ feelings” (MEB, 2013).
There exist a multitude of theories and approaches that attempt to explain the importance of peer relations. According to Vygotsky’s socio-cultural theory, social relations and linguistic communication, both of which are associated with action, are the most important driving force in the child’s social-, cognitive-, and emotional development. An important starting point in Vygotsky’s theory is the view of the individual as a social actor who is involved in the creation of themselves.

Vygotsky also highlighted the importance of the effects of cultural elements on human behaviour, the human mind, and culture. According to his theory, cultural elements affect basic mental processes, including perception, memory, attention. It is also argued that high mental processes arise from the development of basic mental processes. Play constitutes a key element of his theory, and is considered to be the most important way in which children come to understand the world and their culture (Vygotsky, 1978). As the child grows and develops, the faculty of speech also takes on different functions and becomes a means of communicating with the child's self-understanding and with concepts, in addition to being a means of communication with others. The child’s peers are very important for social speech and intersectional conversation, and comprises an important step in the development of verbal thinking (Berk & Winsler, 1995; Bjorklund, 2005).

The Indirect reinforcement concept of the ‘social learning theory’ which has an important role in explaining the importance of peer relations, (Bandura & Walters, 1977) enables the child to learn indirectly through observing the consequences of the behaviours that their peers display. By means of indirect reinforcement, a great deal of the child’s behaviour is established through modelling its peers. The child who observes behaviours that are accepted and strengthened in friendship relations, will begin to display similar behaviours. In this way, the foundations of socialization and friendship relations are laid among peers (Bandura, 1999; 2002; Woodrow, 2001; Gülay, 2010). Unlike family relationships (such as those instantiated by the child’s father, mother, brother, sister, etc.), a friendship relationship does not develop automatically, by itself (Greve, 2007). Friendship is a mutual relationship that requires both parties to be volunteer to and approve of the relationship. A friendship relationship requires intimacy, the sharing of feelings (not only positive feelings but also negative feelings), and companionship (Dunn, 2004). The relationship that initially begins as a mere peer relationship for children evolves into a friendship relationship through play.

Play helps us, to develop our social sides and interactional skills with others. Parten (1932) a pioneer in the study of socialization amongst peers, observed that play behaviour develops in a systematic order. Similar to Parten’s work, Piaget (1969) and Smilansky (1968) developed theories about play which show that play develops in parallel with the child’s cognitive development, and moves from simple play (like throwing an object) to complex play (for example, as manifest in symbolic play). A point common to all play theories is the claim that play has an important role in the development of the socialization of the child and, thus, the friendship relationships that the child enters into. Play is also an important tool for both presenting and acquiring empathy, one of the essential skills for friendship (Nergaard, 2020).

Children benefit from kindergarten education up to the ages of 6 or 7. In this process, they develop their various play behaviours, in concert with their peers. Therefore, they find themselves in a context where they can engage in parallel play, playing together, or in cooperative play. As the time spent by the child at kindergarten increases, she develops a close relationship with her peers and begins to form the concept of ‘friendship’ (Hwang & Nilsson, 2011) Play and friendship is a double-sided mechanism for children. Children play games with their friends, whilst simultaneously developing their friendship relationships by playing games (Corsaro, 2003). A friendship relationship entails a special relationship between two children who are characterized by possessing a mutual liking of each other (Asher, Parker, & Walker, 1998; Ladd & Kockenderfer, 1998). The process of friendship, which seems to develop naturally and spontaneously, requires the existence of different elements. These include social competence (which allows for sustainability by establishing positive relationships), emotional competence (the child’s ability to recognize emotions and respond to displays of emotion appropriately), and positive social behaviour (behaviour that aims to benefit
others). In addition, factors such as gender preference, common interests, temperament, culture, and the environment play an important role in the child’s friendship preferences (Staub, 1978; Hay, Payne, & Chadwick, 2004; Ağzıbüyük, 2008; Gülay, 2010).

Hartrup (1999) draws a distinction between children’s companionship and friendship. A ‘friend’, or ‘friendship’, is defined as a relationship between individuals who share a community together. At preschool, it is natural that different peer relations and friendships arise between children. Bukowski, Newcombe, and Hartrup (1998) state that children choose whom they want to be with. They seek out each other for joint play or other activities. Friendship, in itself, creates a positive context for the child’s development and growth. Friends stand up for each other and give support if the other is sad or something bad happens. Even quite small children can comfort each other if someone is crying (Ashen & Rose, 1997). Sandell (1999) highlights the fact that it is important for preschools to create an environment that favours the establishment and maintenance of the child’s friendship relations because friendship is important for the child’s development. In general, children are good at interacting with one or more peers, for shorter or longer periods (Corsaro, 1982), but in their effort to establish their place within their community of peers, children develop closer relationships with certain other children, as characterised by being ‘best friends’ with a limited number of other children (Corsaro, 1985; Sandell, 1999).

Corsaro’s (1981) research has shown that the meaning of friendship for children at preschool is *to do things together in a certain way and within a certain area*. Bukowski, Newcomb, and Hartup’s (1998) study describes friendship from the individual’s perspective; as a mutual relationship that must meet three basic social needs: partnership, intimacy, and affection.

The conditions for establishing and preserving friendships are assumed (Howes, 1998) to be the same, regardless of the person’s age, but the approach and forms of expression that the friendship relationship takes on differ depending on whether young children or whether adults are under consideration. Small children are dependent on the help of adults to establish and care for their friendships -- something that older children and adults usually do for themselves (Howes, 1998). As mentioned above, whilst children are quite skilled at interacting with one or more peers for shorter or longer periods (Corsaro, 1981; Olofsson, 1992), in their attempts to find a safe place in their community, children develop closer relationships, such as friendship, to a limited number of other children whom they play and work with regularly (Corsaro, 1985; Sandell, 1999).

Although there are studies that have dealt with the concept of ‘friendship’ from different perspectives (Corsaro, 1979; Howes, 1988; Johansson, 1999; Ailwood, 2003; Greve, 2007; Jónsdóttir, 2007; Engdahl, 2012), there is no current research that has investigated the concept of ‘best friend’ by taking with the preschool child’s voice into account. The present paper purposefully includes the voices of children who live in different countries (Sweden and Turkey), as we present their ideas about the concepts of ‘best friend’ and ‘friendship’.

**Research aim**

The aim of the present study is to investigate children’s perceptions of the concept of ‘best friend’, as expressed by 4-5-year-old children who live in Turkey and Sweden. To achieve this general aim, we ask the following research questions:

- How do 4-5-year-old children who live in Turkey express their understanding of the concept of ‘best friend’?
- How do 4-5-year-old children who live in Sweden express their understanding of the concept of ‘best friend’?

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• What are the similarities and differences between 4-5 year-olds who live in Turkey and in Sweden?

**METHOD**

Our study of the opinions of 4-5-year-old children who live in Turkey and Sweden employs a qualitative research methodology and a cross-cultural perspective. Qualitative research prioritizes the explanation of social phenomena in the context in which they occur (Merriam, 2009; Yıldırım & Şimşek, 2016). The interview method, which is one of the main methods of qualitative research, is used in this study. According to Stewart and Cash (2010), the interview method entails a predetermined process that involves interference and communication. These are achieved by asking and answering questions. The aim of the interviewer is to enter the interviewee’s inner world and to comprehend their perspective (Patton, 1987). The data that was obtained in this study was sorted across a number of different codes by authors and was analysed using the content analysis method. Content analysis entails summarizing and interpreting data that is collected by means of interviews or observed. Content analysis is a systematic and repeatable method that enables texts consisting of many words to be transformed into content categories based on certain rules (Mayring, 2004).

**Study group**

The study group included in this research consisted of 52 children in total: 25 Turkish children (21 five-year-olds, 4 four-year-olds) and 27 Swedish children (22 five-year-olds, 5 four-year-olds). A randomized cluster sampling method was used in order to determine the membership of the study group. 3 preschools in Turkey, and 2 preschools in Sweden were selected. Ethical approval was obtained from the Hacettepe University’s Ethics Committee prior to data collection. In addition to the ethical approval, informed consent forms were submitted to 215 families in Turkey and 52 families in Sweden to obtain permission from the families to allow these children to participate in the study. Further to this, permission was obtained from the relevant school administrations and teachers. After their submission of the informed consent forms, the children who participated in the study were provided with a brief explanation concerning the study before the children whose families granted permission for their participation in the study were interviewed. The children and families were informed that any child could leave the study at any time, if the child so wished. The interviews were conducted after verbal consent regarding their participation in the study was granted by each child. After setting these conditions and obtaining all the necessary permissions, 52 children (25 from Turkey and 27 from Sweden) were interviewed. Since this study is primarily aimed at identifying children’s perceptions regarding the concept of ‘best friends’, specific demographic data was not collected during the course of the study. On the other hand, it was discovered by the researchers that the gender distribution across the two groups of children was found to be similar.

**Data Collection Tools**

A semi-structured interview form consisting of 4 questions was used as the primary data collection tool. The questions used in the study were written in English, since this language is understood by the authors and much of the literature on this topic is in English. Furthermore, three experts in this field were consulted, experts who were both familiar with working in English and had produced previous studies in the area under investigation. These experts provided their opinions regarding the questions that were included in the semi-structured interview form questions. After receiving feedbacks, the semi-structured interview form questions were finalized. At this point, the questions were translated into both Turkish and Swedish and then re-translated back into English, in order to obtain some level of linguistic equivalence.
Data Collection Period and Analysis

The authors referred to the semi-structured interview form questions during their face-to-face interviews with the participating children. The interviews lasted between 5-10 minutes and conducted in a designated room that is smaller than the room that was usually used by the children during their preschool day. The responsible preschool teachers escorted each child to the interview room, one-by-one. All of the interviews were recorded and transcribed by the authors. This was done in order to not distract the child’s attention and to prevent the potential loss of data which note-taking may incur during an interview. These transcriptions were then subject to our analysis. We employed a content analysis method, a qualitative research method. Content analysis allows for an understanding of the data obtained during the research process according to the identification of common relationships (Yıldırım & Şimşek, 2016). The data that was collected for the study was read several times by the authors individually, who then identified individual codes within the material. The codes that were identified by the individual authors were then shared with all of the other authors. Subsequent to this, a set of codes common to the research data was agreed on by the authors. The authors establishing a consensus amongst themselves regarding the themes that these codes represented. The present study draws a number of comparisons between the participating children’s perception of ‘friendship’ and ‘best friend’ in Sweden and Turkey. To this aim, we employed a statistical analysis of the interview data. After the content analysis was completed, all of the codes were loaded into SPSS. The participating children were coded as ‘t-1’ and ‘t-2’ (and so on) for the Turkish study group, and ‘s-1’ and ‘s-2’ (and so one) for the Swedish study group.

Validity and Reliability

The informed consent forms that were provided to the children’s families explained that all of the participants’ personal information would be kept confidential and private. Voice recordings were made of the interviews and these records were transcribed precisely; thereby preventing data loss. In order to provide internal validity amongst the group of researchers who were involved in the study, each researcher carried out their own pilot study and several points of agreement amongst the researchers were taken into consideration. To increase reliability in the research data analysis process and to provide consistency amongst the researchers, each researcher formulated a set of codes w.r.t. the data set individually, including the identification of themes. In order to increase the reliability of the study, a number of extracts from the interview transcripts are provided in instances where it was thought that they would make the results of the study more comprehensible to the reader.

RESULTS AND DISCUSSION

In this section, we present a number of examples of the short answers that the children provided during the interviews. These examples are presented and discussed as a part of the present study’s result, together with frequencies.

Table 1. The children’s opinions about the concept of ‘best friend’

<table>
<thead>
<tr>
<th>Codes</th>
<th>TURKEY</th>
<th>SWEDEN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4 years old (f)</td>
<td>5 yearsold (f)</td>
</tr>
<tr>
<td>Love/Like</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Play</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Help</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Kind</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Funny or Have Fun</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Don’t Know</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Happy</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Mate</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Share</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Be Good</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>OTHERS (the perfect one, a)</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>
In Table 1, the concept of ‘best friend’ is associated with expressions made by the children during the interviews. As indicated in the table, frequently used expression in Turkey referred to ‘Love/Like’ (f = 8), whilst ‘Play’ (f = 14) was the most frequent in Sweden. In general, when all of the responses that were provided by the children are examined, we note that the concept of ‘best friend’ invokes associations with positive emotions and behaviours in children.

Below, we provide a number of examples of the children’s answers to the question: “What does it mean to be best friends?”

My favourite friend. (t7, 4 years old)

He is your best friend who treats you best. (t23, 5 years old)

Very nice to share. (t14, 5 years old)

You have a friend you love. (s1, 4 years old)

That they are kind you can play with. (s13, 5 years old)

Someone you play a lot with, that is a good friend. (s25, 5 years old)

A number of prosocial behaviours, including like, love, share, fun, kind and play are common to being a best friend in both countries. Swedish children mostly focused on playing with one’s best friend with respect to best friends. This result is in agreement with current discussions of friendship in the literature. This is the case because, to determine the mutual friendships of preschool children, the sociometer methods that are used in the literature invoke similar sets of questions. For example, these may include questions which identify: (1) three peers with whom they most liked to play with, and (2) three peers with whom they did not like to play/liked least (Asher, Singleton, Tinsley, & Hymel, 1979). In parallel with the results of the present study, Büyükbiçer and Ulutas (2018) found in their study of preschool children (which also employed a semi-structured interview technique) that close friends enjoyed playing the same games together. The Turkish children conceptualization of being best friends primarily invoked feelings such as love or like. These findings are congruent with the results of several previous studies. Nergaard (2020) found that children’s expectations from ‘friendship’ is someone that understand their feelings, trustworthy, they will connect with and play together. According to Lindsey and Berks (2019), the children who they worked with children expressed more emotions (both positive and negative) when interacting with friends than with other acquaintances. Children at preschool and at home from the infancy years in Sweden are taught to learn by playing. Consequently, they choose their friends within this framework of action. Playing is the most important way of learning at Swedish preschool. If we look at the situation in Turkey, the more common responses to what constitutes a best friend are expressed in terms of feelings. This is thought to be a result of a cultural difference. Turkish children often use sentences about sharing for defining what a best friend is for them. This could be the result of the fact that Turkish teachers frequently remind their pupils that sharing is good, a behaviour that is directly informed by Turkish cultural values.
In Table 2, most of the children in both countries chose to have one best friend among all their other friends.

The following illustrate the type of answers that the children provided when they were asked “Who is your best friend?”:

*Zehra and Kerem Yiğitkara (t10, 4 years old)*

*Deniz Su (t8, 5 years old)*

*Esin (t18, 5 years old)*

*All/every one (s9, 4 years old)*

*Svea (s24, 5 years old)*

*Ellie and mother’s cousin Tina (s1, 5 years old)*

We note that, in most cases, the children have the ability to choose who their best friend is, in either country. Most of them had one friend in mind. This indicates that the children in both countries can differentiate between their best friends and other friends in terms of emotional, social, and cognitive aspects, from the age of four. This observation is supported by van Hoogdalem et al. (2012), who state that, instead of making random choices among their peers in the classroom with respect to who they are to play games with or communicate with, children clearly show a preference for certain children within their group. Our survey revealed that most of the children in both countries choose a best friend who is of the same sex as they are. Similarly, in a different study conducted with children aged 5-6, it was found that children attach a certain importance to gender similarity in their best friends (Wang, Palonen, Hurme, & Kinos, 2019). In the study conducted by Wang et al., they claim that children’s friendship ties, that is, their relationships with children with whom they are best friends, stabilize over time and tend to crystallize. It is thus argued that children seek out stable and mutual relationships, rather than expanding their peer networks. Park and Park (2016) found that children can maintain their friendship ties consistently over a five-month period. According to Proulx and Poulin (2013), maintaining a relationship with at least one friend throughout the school year seems to be important for children in kindergarten. In all these studies, the importance of close friendships that are established in early childhood is emphasized. Entering into stable peer relationships is expressed as being key to creating a participatory culture, since such relationships ensure the child’s psychological- and social well-being in their transition to primary school (Finnish National Board of Education 2016).
In Table 3, most of the children in both countries stated that they had not experienced conflict with their best friends. However, we note that more Turkish children (f = 9) reported that they had experienced conflict with their best friend than the Swedish children who participated in the study (f = 2).

Below, we provide a number of the children’s answers to the question “Do you bother/fight with your best friend?”:

**Sometimes. We make peace by not doing it again and apologizing.** (t3, 4 years old)

**No, it never happens.** (t1, 5 years old)

**Never. Mmmmmm just once. We make peace by playing. If you do not like the behaviour of your friend you should tell her. If she does it again you should leave the place and go to the teacher.** (t12, 5 years old)

**No, Matteus used to fight and if he does not stop you must get a teacher.** (s2, 4 years old)

**No.** (s7, 5 years old)

**Sometimes.** (s26, 5 year old)

The Turkish children responded more frequently with a positive answer to the question of whether they had experienced conflict with their best friend than the Swedish children who participated in the study. In Turkey, the schools which participated in the study have in place a conflict resolution program, as indicated by some of the Turkish children’s answers. For example, *If you do not like the behaviour of your friend you should tell her. If she does it again you should leave the place and go to the teacher.* (t12, 5 years old). The existence of such a conflict resolution program may inform the children’s answers to the question of whether they had experienced conflict with their best friend. It is important to note that many researchers in this area define two dimensions that are related to friendship. The first dimension of friendship refers to concepts such as ‘cohesion’, ‘positive social behaviour’, ‘reliability’, and ‘warmth’. The second one refers to ‘conflict’. There is some evidence that many children’s perceptions of the concept of ‘friendship’ include both dimensions, for example, ‘intimacy’ and ‘conflict’ (Daniels, Quigley, Menard, & Spence, 2010). In a number of studies, it has been claimed that friendship and peer relationships are important in resolving conflicts and disputes (Corsaro, 1994; Evaldsson, 2003; Kyratzis & Guo, 2001; Martinez-Lozano, Sánchez-Medina, & Goudena, 2011; Poveda & Marcos, 2005). According to Corsaro (2015), the common interpretation in all these research findings is that the importance of friendship and peer relations with respect to conflict and dispute resolution is due to the fact that friendship is a collective and cultural process.

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**Table 3. Instances of conflict with best friends**

<table>
<thead>
<tr>
<th></th>
<th>TURKEY 4 years old (f)</th>
<th>TURKEY 5 years old (f)</th>
<th>SWEDEN 4 years old (f)</th>
<th>SWEDEN 5 years old (f)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never/No</td>
<td>3</td>
<td>10</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td>Sometimes</td>
<td></td>
<td>3</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Yes</td>
<td>1</td>
<td>8</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Others (Afred, Greta)</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>4</td>
<td>21</td>
<td>5</td>
<td>22</td>
</tr>
</tbody>
</table>
Table 4. Children’s play

<table>
<thead>
<tr>
<th></th>
<th>TURKEY 4 years old (f)</th>
<th>TURKEY 5 years old (f)</th>
<th>SWEDEN 4 years old (f)</th>
<th>SWEDEN 5 years old (f)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dramatic Games</td>
<td>1</td>
<td>13</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Sports Games</td>
<td>1</td>
<td>2</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Digital Games</td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Manipulative Games</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Street Games</td>
<td>2</td>
<td>9</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Art Games</td>
<td>1</td>
<td></td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Others</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>4</td>
<td>21</td>
<td>5</td>
<td>22</td>
</tr>
</tbody>
</table>

In Table 4, it is reported that Swedish children play Dramatic Games (f = 19), Digital Games (f = 4), Manipulative Games (f = 9) and Art Games (f = 8) more frequently than the Turkish children who participated in the study. The Turkish children reported that they prefer playing Outdoor Games and Sport Games (f = 11) more frequently than the Swedish children.

Some examples of the children’s answers to the question “What play and games do you do with your best friend/ friends?” are provided below:

- Playing house, playing cat, we are being two cats, or one of us owns a cat. (t7, 4 years old)

- Playing house, playing being doctor, playing doing dentist. (t11, 5 years old)

- We play all the games, make some games ourselves and play. (t22, 5 years old)

- Playing hut. (s23, 4 years old)

- Snowball war, thief and police, building with Lego, figures, everything. (s19, 5 years old)

- Family nook, drawing. (s26, 5 years old)

Every Swedish preschool child has an iPad. And even families with a low income also own an iPad and/or a computer. In Sweden, these items are relatively cheap to buy, but if a family does not have the means to buy such things for the child, then the preschool will compensate for that. Because all children in preschool must learn to use digital tools due to the curriculum (Lpfo-18). Consequently, Swedish children at preschools use these learning tools more frequently than Turkish children. Most children play Dramatic Games, Outdoor Games, and Manipulative Games in either country. This can be explained in accordance with the development process. At the time when the interviews were conducted in Sweden, it was winter-time and so it was very cold with plenty of snow outside. This placed a certain limitation on the study. In contrast, in Turkey, the interviews were conducted at another time of the year, and this with different weather conditions. If we had collected the data during the spring in both countries, then different responses to the interview questions may well have been offered up by the participating children. In agreement with the results of the present study, the importance of play in friendship relationships during the preschool period is also frequently emphasized in the literature. The friendship relations that emerge during the preschool period are mostly evident in games that are structured in terms of binary participation, in small groups, or in fantasy games. Working in the area inclusive early childhood education, Watson (2019) states that children who play with their peers and establish friendship relationships in early childhood are seen as a developmentally ‘normal’, an expected situation. While it is accepted that those who play with their peers develop normally, those who play alone or who play differently are positioned as ‘other’ (Watson, 2019). In mid-childhood, friendships are based on shared norms and personal qualities. As a
function of growing interpersonal awareness, they are based on intimate, dual exchanges with friendships, openness, honesty, and compassion in adolescence (Bigelow, 1977; Parker & Gottman, 1989). In summary, (and as explained by sociocultural theory), children's social-emotional and cognitive development in activities and games with their peers is extremely important because it supports peer learning (Bodrova & Leong, 2007).

**LIMITATIONS**

The approach of our study is qualitative, but certain problems were encountered because the young children who participated in the study mostly responded with short answers, sometimes just single words, thereby limiting the creation of a flowing narrative. These short answers provided us with but limited opportunity to compare the children between the two countries. For this reason we used quantitative measurements for the comparison of the two population groups.

Further limitations to this study can be attributed to the fact that different researchers conducted the interviews in the two different countries, in different preschools contexts, and at different times of the year and preschools are organized differently in the two countries (OECD, 2017). The different types of play and games that the children engaged in were sometimes difficult to interpret, but the authors solved this issue collaboratively. In spite of these limitations, the children’s perception about what a ‘best friend’ is seems to be quite similar.

**CONCLUSION AND SUGGESTIONS**

In summary, similar results regarding the perception of the concept ‘best friend’ were obtained in both countries. One of the most important result of the study is the observation that children always have good emotional and behavioural thinking about their best friend. Every relationship is unique and, therefore, preschool teachers should protect and take care of the friendships that emerge between children at preschool. One question we must ask ourselves: Is it possible to compare children’s perception between children living in different countries? This question addresses potential differences, not only between different countries, but also between different cultures, family traditions, and social standards, both in the home and at preschool. In the introduction, we highlighted the existence of our globalized world with multicultural societies and the question of whether we are as different from each other as some might think. Optimistically, the results of the present study, notwithstanding the fact that this is a small-scale investigation, show that, no matter what culture and context they live in, children who live in different countries are more similar to each other with respect to their understanding of the concept ‘best friend’ than they are different to each other. We call for further studies on this issue.

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Creating a Reading Culture in a Preschool in Collaboration with Children, Teachers and Parents

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Abstract

Adopting a reading culture is a process that takes shape in family starting from the moment the child is born and school environment. The most critical phase of this process is the “preschool period.” Therefore, the main purpose of this study is to construct a systematic intervention to create a reading culture in the preschool period. For this purpose, the study included “preschoolers, teachers, and parents” as the participants considering them as stakeholders in the process of building a reading culture.

The population of the study is the preschools located in the district of Ereğli, Zonguldak, Turkey and the sample consists of 16 preschoolers at a preschool in Ereğli along with their parents (n=16) and their teachers (n=2). The study was carried out as an action research conducted for a period of 12 weeks. The 12-week intervention timeline is divided into two phases. In the first phase (first six weeks), the seminars on creating a reading culture were given to teachers and parents by a field expert and in-class observations of preschoolers were made. In the second phase, creative reading activities were implemented with the children (as two sections - A and B) for an hour once a week. The data come from observations, interviews, and participant diaries and were analyzed through content analysis.

The study is considered to be crucial for the relevant literature as it includes children, teachers and parents, at the same time, as the three key stakeholders in the process of building a reading culture. At the end of the 12-week intervention, both positive and significant changes were observed both in children and parents as well as in teachers in terms of theoretical and practical aspects of adopting a reading culture.

Keywords: Reading Culture, Building Reading Culture, Preschool Period, Children-Teachers-Parents, Children’s Literature.

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INTRODUCTION

One of the most important variables of becoming a developed society is the individuals’ adopting a reading culture. Reading culture is a process that should be empowered through sensitive and conscious efforts starting from the birth of the child. In this context, acquiring a reading culture is “a process related to an individual’s engagement with written and visual cultural artifacts woven with a sense of aesthetics and the internalization of the reading habit as a way of life” (İnce Samur, 2016; Sever, 2010).

Reading culture is a sequential, continuous and integrative process. As depicted by Sever (2007:108), reading culture is “a set of behaviors acquired by individuals who: have got acquainted with the world of written cultural artifacts; have reached the competence to share, test and question the messages by this world (s)he familiarized with; and have made a habit of living with the opportunities that those messages offer.” According to Yılmaz (2009:134), reading culture means “the level and quality of the relationship between the act of reading and an individual, a social group or a society. In other words, reading culture is an individual’s, a social group’s or a society’s part of life reflected on the domain of ‘reading’.

In short, reading culture is both a personal and social life style related to the act of reading. According to Ince Samur (2014), “it is the cluster of behaviors of an individual who: can make effective use of written and visual cultural artifacts; can transfer his/her reading habit to a critical reading skills through this interaction; and can transform all of those gains into a life style starting from the moment of birth at personal and social spheres.” On the basis of the aforementioned definitions, reading culture is not only a transformation of the act of reading into a habit, but it is also related to the acquisition of critical thinking skills and conceptualizations both as a personal and a social action.

The process of adopting a reading culture consists of a set of behaviors that should be acquired during the 0-to-14 age period including preschool, primary school, and secondary school (İnce Samur, 2016; Sever, 2010). On the other hand, preschool (0-6 ages) is a period which reflects the most critical and fastest development of a child. Children’s development in this period is of vital importance. In this respect, building a reading culture in society is highly important by structuring a systematic intervention through which children are familiarized with the quality works of children’s literature both at school and home environment starting from the preschool period.

With the most concise description, reading culture requires a process-based structuring, because as the name suggests, “culture” is a way of life that is formed, developed and settled over a long period of time. It is for sure that an individual could only adopt a reading culture with systematic and conscious practices starting from the moment of birth. In this context, Ince Samur (2014) outlines the steps to create a reading culture among children as follows:

Steps to Create a Reading Culture

Preschool Period: Visual Reading Period (Communicating through Visual and Linguistic Stimuli)

- Introducing Books to Children (0-2 ages)
- Children’s Making Friends with Books (2-4 ages)
- Creating the Love of Books in Children (4-6 ages)
Primary School Period: Transition from Visual Reading to Linguistic Reading

- Teaching Reading and Writing Skills to Children (6-8 ages)
- Instilling Reading Habits in Children (8-10 ages)

Secondary School Period: Transition from Linguistic Reading to Critical Reading, Watching, and Listening

- Teaching Children Critical Skills in Reading, Watching and Listening (10-12 ages)
- Developing Reading Culture in Children (12-14 ages)

As portrayed in the “Steps to Create a Reading Culture,” the period from the birth of the child to the age of 14 is a long and demanding process that build and develop the acquisition of a reading culture. Each period consists of important and critical phases within itself. A child’s preschool years, which is the transition period from infancy to childhood, is the most critical and indicative period of life as the foundations of a reading culture is laid then.

The visual reading period, in which the interest in reading and the love of books are instilled in the child, is the introductory stage of acquiring a reading culture. The primary school period, in which the child’s developmental characteristics (linguistic, cognitive, personality, social, and so on) become evident and the acquisition of reading habits along with linguistic reading is operationalized, is the development stage of acquiring a reading culture. Finally, the secondary school period, in which the reading culture is developed along with the critical reading skills as well as the general habits of reading besides all the physical and psychological changes of the transition period from childhood to adolescence, is the closure stage. A systematic and effective construction of those stages are vital steps that constitute the process of a child’s adopting a reading culture.

The most basic tool for the process of acquiring a reading culture is the literary works in the children’s literature. Children’s books are an effective and determinant element that conveys the process of self-realization in children through a sense of aesthetics, critical thinking, and creativity both linguistically and visually with the richest expressive samples of the native language (Dilidüzgün, 2018: 15; Dowling, 2002: 139; Gander and Gardiner, 2001; Güven and Bal, 2000; Lukens, 1999: 9-10; Maltepe, 2009: 399; Sever, 2010: 21).

The individual is born with the ability to acquire language, but it is also known that language is acquired through social communication within the cultural community. Bruner states that language and literature are also an active element in cultural and cognitive processes. In this context, the early years of life are important for the child to develop some habits. Adults who are conscious of the children’s development are able to strengthen these habits in the best way to make them in line with the developmental characteristics and expectations of children (Aral et al., 2000: 14; Smith and Ballard, 1998: 3). For this reason, it is essential to raise awareness among teachers and family members who play an active role in children’s development in terms of building a reading culture.

separately. In some studies, family and child cooperation was highlighted in order to improve the reading skill of the child. However, no study has been found to include children, parents and teachers at the same time.

With the broadest description, reading culture is a vital process that positively affects an individual’s success in both academic and social life. For this reason, this process should be put into practice starting from the moment the child is born. That is why the preschool period is considered to be the most indicative period for a healthy and appropriate development of an individual in all aspects. In that respect, parents and teachers, who are the main stakeholders in the upbringing of a child, should know well and internalize the process of creating a reading culture. In this context, this study aims to find an answer to the question of what kind of a process should be employed to “create a reading culture in the preschool period” by collaborating systematically with teachers and parents in a 12-week period.

**METHOD**

**Research Design**

The study was carried out as an action research. Action research is an approach that involves systematic data collection and analysis to bring out issues related to the practice or to understand and solve a problem that has already arisen. And, it is carried out directly by a practitioner, who is involved in the practice, either by himself or with a researcher (Yıldırım and Şimşek, 2016: 307). In this study, which aims to put the individual in the position of the ‘main subject’ in the process of adopting a reading culture starting from the moment of the birth, an action research, in which the researcher was also a practitioner, was conducted. Considering “the participant role as well as the data collector role of the researcher” which is frequently emphasized in the qualitative research (Yıldırım & Şimşek, 2016: 74), this study entirely reflects the action research approach.

**Study Group/Participants**

Regarding the contributions of action research, we could mention a lot of advantages such as establishing a bridge between theoretical knowledge and practice, improving education and training practices, ensuring school improvement, empowering teachers and contributing to the professional development of teachers (Gürgür, 2016: 19). In accordance with these advantages, the study group was determined through criterion sampling. The basic understanding in criterion sampling is to study all cases that meet a predetermined set of criteria (Yıldırım and Şimşek, 2016: 122). The population of the study is the preschools located in the district of Ereğli, Zonguldak, Turkey and the sample consists of 16 preschoolers at a preschool in Ereğli along with their parents (n=16) and their teachers (n=2), who were selected and included in the study through criterion sampling (by considering the convenience of the their participation as well as continuous monitoring of the intervention). On the other hand, children and parents, who had health problems or other reasons, were not able to participate regularly each week. Such cases are specified numerically in the tables in the findings section.

**Data Collection Procedures**

Data Collection Tools
The study was carried out with preschoolers, their parents and their teachers during a 12-week period in the fall semester of the 2017-2018 academic year. The data were collected through observations, interviews, and participant diaries. The most important feature of the observation technique is that the observants are in their natural environment. Most behaviors can only be detected objectively in this way (Karasar, 2012: 157). Before, during and after the intervention, any possible changes and developments in the reading culture of both teachers and parents as well as children were observed. Interview, on the other hand, is a data collection (inquiry) technique through verbal communication (Karasar, 2012: 165). There were also a lot of data collected from the teachers and parents through semi-structured interviews and participant diaries. These data collection tools were reviewed and finalized by three field experts.

In the first week, “Pre-intervention Interviews” were conducted to the 5-6-year-old preschoolers of both sections (A and B) by means of one-to-one interview method through which children’s responses were written down. The parents and teachers were also given “Pre-intervention Interview Questions” and asked to fill in those forms by writing. During the first phase (for 6 weeks), both the teachers and parents were given 60-90-minute seminars on building a reading culture by focusing on “reading culture and children’s literature, what books should be read to what age group in the preschool period and how.” Additionally, a total of 16 preschoolers from A and B sections were observed within the scope of “Pre-intervention Observations.”

At the end of the sixth week, the teachers and parents were asked to fill in the “Mid-intervention Interview Questions.” On the other hand, “Participant Diaries” were distributed to the parents to be written at home for the second phase (the next six weeks) regarding the creative reading practices done in the school. In this way, important feedback in terms of the developmental periods and reading was provided about the children who were also observed within one class hour during the first six weeks. In the second phase of the study, creative reading activities for children were developed and implemented (through quality books of children’s literature selected by two field experts) for an hour each week.

1 “Creative Reading Activities and Homework” and “Photographs” at school and home were not included in the paper due to the limited word count. Also, tables and analyzes of the Pre- and Mid-intervention Observations” and “Participant Diaries” are not included; only overall evaluations were provided.
Activities implemented with children: Effective reading, creative reading, activating thinking skills, question-answer, empathy with the characters and their friends in the stories, discussion, impersonation, drawing pictures by stimulating imagination, interpretation, reminding, creating context for the story, visualizing the story with shadow play, reenacting the story with materials, noticing the details in the story, effective and creative reading of the books without words with children, reading aloud by watching the video created about the book, conveying thoughts, making general comments, and so on.

At the end of the sixth week, “Mid-intervention Interviews” were carried out with the children by taking notes during one-to-one interviews. On the other hand, “Post-intervention Interview Questions” were administered to the parents and teachers through written forms. “Participant Diaries” were also collected from the parents and a meeting was held with the parents and the teachers through a question-answer session where an overall evaluation was made and further comments were taken.

Data Analysis

The data which were obtained from observations, interviews and participant diaries were analyzed through content analysis. The basic process in the content analysis is to gather similar data around certain concepts and themes and to interpret them in a way that the reader can understand well (Yıldırım & Şimşek, 2016: 242).

FINDINGS

In this section, the findings from the pre-, mid-, and post-intervention interviews, which was carried out within a 12-week work plan, are presented. An overall evaluation of the observation forms and participant diaries is also provided briefly.

Findings regarding Pre-intervention Interviews with Children

In this section, the findings regarding the pre-intervention interview questions directed to the children in the first week of the study is presented.

Table 2. Children’s first meeting with books

<table>
<thead>
<tr>
<th></th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>At home</td>
<td>11</td>
<td>68.75</td>
</tr>
<tr>
<td>At school</td>
<td>3</td>
<td>18.75</td>
</tr>
<tr>
<td>No info</td>
<td>2</td>
<td>12.5</td>
</tr>
</tbody>
</table>

As in Table 2, for the question “When did you first meet a book?” 11 out of 16 children (with the highest rate, 68.75%) answered “at home”, 3 (18.75%) answered “at school,” and 2 answered (12.5%) “I don’t remember”.


This finding reveals that preschool children meet a book first at home, that is with the help of family members. This point also reveals the importance of families’ awareness of choosing quality works of children’s literature and introducing them to their children.
Table 3. Title of the first book children read

<table>
<thead>
<tr>
<th></th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>I don’t remember</td>
<td>11</td>
<td>68.75</td>
</tr>
<tr>
<td>I remember</td>
<td>5</td>
<td>31.25</td>
</tr>
</tbody>
</table>

As in Table 3, for the question “Do you remember the title of the book?” 11 out of 16 children (with the highest rate, 68.75%) answered “No” and 5 of them (31.25%) answered “Yes.” Children who could not remember the title of the book generally remembered some brief information about the content or the pictures of the book. The books they mentioned were not among the quality works of contemporary children’s literature. And, they gave short or one-word answers to the question “Can you describe a book that you remember?”

ÖA7: Atatürk. / ÖA2: Yav Vak Wiki. / ÖB6: There was a baby fox. / ÖB5: The Rooster Tale.

This finding shows that the books in the answers appear to be as an element that does not recalled well in the children’s life or does not appeal well to them.

Table 4. What does a book mean to you?

<table>
<thead>
<tr>
<th></th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading</td>
<td>5</td>
<td>31.25</td>
</tr>
<tr>
<td>Nice/Good</td>
<td>3</td>
<td>18.75</td>
</tr>
<tr>
<td>Art</td>
<td>2</td>
<td>12.5</td>
</tr>
<tr>
<td>Tales/Fairies</td>
<td>2</td>
<td>12.5</td>
</tr>
<tr>
<td>Animals</td>
<td>1</td>
<td>6.25</td>
</tr>
<tr>
<td>No idea</td>
<td>1</td>
<td>6.25</td>
</tr>
<tr>
<td>Happiness</td>
<td>1</td>
<td>6.25</td>
</tr>
<tr>
<td>Letters</td>
<td>1</td>
<td>6.25</td>
</tr>
</tbody>
</table>

As in Table 4, for the question “What does a book mean to you?” 5 out of 16 children (with the highest rate, 18.75%) answered “nice, good”, 2 children in each group answered “art” or “tales and fairies” and 1 child in each group answered “animals” “happiness” or “letters.” As an important finding, the meaning of books is mostly associated with “reading,” which shows that children match books with reading in their perception. To acquire a reading culture, children’s positive feeling about books is considered as an important step; thus, the answer “happiness” compared to other answers, is considered as a concept expressing the meaning attributed to a book by children, which is a striking point.

Table 5. Do you like books?

<table>
<thead>
<tr>
<th></th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>16</td>
<td>100</td>
</tr>
<tr>
<td>No</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

As in Table 5, all of the children answered “yes” to the question “Do you like books?” As a follow-up comment regarding the reasons for liking books, the children perceived books as “informative” and “fun.” Moreover, it is interpreted that the children having books around them at home and being engaged with books with the support of their parents could make books a part of their life.

ÖA5: Because information is hidden in books. / ÖA6: Because books contain games. / ÖB4: Because books make our minds work and help us do our homework. / ÖB2: I like reading books with my mother because books make me sleep.
This finding emphasizes the importance of the books’ being fun, containing games, being a means of spending time with parents, relaxing and helping the children sleep, and being a source of information for children to love books.

Table 6. Who do you read with mostly at home?

<table>
<thead>
<tr>
<th></th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother</td>
<td>9</td>
<td>56.25</td>
</tr>
<tr>
<td>Father</td>
<td>7</td>
<td>43.25</td>
</tr>
<tr>
<td>Sister</td>
<td>4</td>
<td>25</td>
</tr>
<tr>
<td>Brother</td>
<td>1</td>
<td>6.25</td>
</tr>
<tr>
<td>Uncle</td>
<td>1</td>
<td>6.25</td>
</tr>
<tr>
<td>None</td>
<td>1</td>
<td>6.25</td>
</tr>
<tr>
<td>Alone</td>
<td>1</td>
<td>6.25</td>
</tr>
</tbody>
</table>

As in Table 6, although some of the children did not give a single answer to the question “Who do you read with mostly at home?” 12 out of 16 children with the highest rate, 56.25%, answered “mother.” This finding shows that children mostly read books with their mothers at home. The fact that 9 (43.25%) of them answered “father” with the second highest rate shows that fathers also participate in the reading process like mothers. The results indicating that some children responded as “sister” (f=4) and “brother” (f=1) implied that the children also perform the act of reading with their siblings. All those findings indicate that families have an important role in children’s acquaintance with the books in the preschool period and that mothers should be competent enough in choosing children’s books and guiding creative reading processes since there are more children who read books with mothers.

Table 7. Who do you enjoy reading with mostly?

<table>
<thead>
<tr>
<th></th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother</td>
<td>8</td>
<td>50</td>
</tr>
<tr>
<td>Father</td>
<td>6</td>
<td>37.5</td>
</tr>
<tr>
<td>Sister</td>
<td>2</td>
<td>12.5</td>
</tr>
<tr>
<td>Alone</td>
<td>2</td>
<td>12.5</td>
</tr>
<tr>
<td>Brother</td>
<td>1</td>
<td>6.25</td>
</tr>
<tr>
<td>None</td>
<td>1</td>
<td>6.25</td>
</tr>
</tbody>
</table>

As in Table 7, for the question “Who do you enjoy reading with mostly?” 8 out of 16 children (50%), answered “mother.” As the second highest rate, 37.5% of them gave the answer “father.” This finding once again revealed the importance of the parents’ role in building a reading culture and their awareness of the children’s literature.

Table 8. Do you have a library at home?

<table>
<thead>
<tr>
<th></th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>10</td>
<td>62.5</td>
</tr>
<tr>
<td>No</td>
<td>6</td>
<td>37.5</td>
</tr>
</tbody>
</table>

As in Table 8, for the question “Do you have a library at home?” while 10 children (62.5%) answered “yes,” 6 children (37.5%) answered “no.” The presence of a library in children’s houses is an important point for children to access and interact with books. On the other hand, it is also an important issue whether the library is easily accessible for the child or whether the books reflect sufficient quality.
Findings regarding Pre-intervention Interview Questions Answered by Parents

In this section, the findings regarding the pre-intervention interview questions answered by the parents in the first week of the study is presented.

Table 9. When did you read a book to your child for the first time? Do you remember the title of the book?

<table>
<thead>
<tr>
<th></th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-6 ages</td>
<td>7</td>
<td>43.25</td>
</tr>
<tr>
<td>0-2 ages</td>
<td>5</td>
<td>31.25</td>
</tr>
<tr>
<td>None</td>
<td>3</td>
<td>18.75</td>
</tr>
<tr>
<td>I don’t remember</td>
<td>1</td>
<td>6.25</td>
</tr>
<tr>
<td>2-4 ages</td>
<td>-</td>
<td>0</td>
</tr>
</tbody>
</table>

According to Table 9, for the question “When did you first read or buy a book to your child for the first time?” 7 out of 16 parents with the highest rate, 43.25%, answered “4-6 ages.”

VA8: I haven’t bought any books for my kids. I don’t have a habit of reading. / VA6: We bought the first book for my daughter when she was born and we read short stories every night. / VB5: Coloring book when starting kindergarten... / VB7: At age one... It was an illustrated book with a paper cover.

The answers revealed that children met a book at the age of 4 to 6 when they started preschool, instead of 0-2 ages which should be the right time to introduce books to children. This finding shows that most of the parents are not conscious about how establish ties between the child and books, and therefore the time for children to meet the book is delayed. With the second highest rate (31.25%), 5 parents introduced books to their children at 0-2 ages. It is a striking finding that 3 parents (18.75%) answering “no” did not bring the child and books together in any way. None of the parents participating in the study indicated 2-4 ages as the time to establish a friendship with books, which means an ignorance of the early ages in the process of building a reading culture.

Table 10. Do you have any knowledge about children’s literature?

<table>
<thead>
<tr>
<th></th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>14</td>
<td>87.5</td>
</tr>
<tr>
<td>Yes</td>
<td>2</td>
<td>12.5</td>
</tr>
</tbody>
</table>

According to Table 10, for the question “Do you have any knowledge about children’s literature? If yes, please explain in short” 14 out of 16 parents with the highest rate, 87.5%, answered “No.”

VA1: Listen first, then make him listen and practice what he observes. Trying to understand your child. / VA8: A topic that gives information to the child to read and love books according to their age. / VB7: I know Turkish and World classics. Ömer Seyfettin and The Matchstick Girl, Lead Soldier, Ugly Duckling, Maya the Bee. / VB8: Storybooks, Peter Pan.

Those answers show that most of the parents participating in the study do not have any knowledge about children’s literature, which highlights the significance of the current study. Also, the majority of the examples given by the parents did not belong to children’s literature. So, this point reveals that the parents do not have sufficient information about how to introduce quality books to their children.
Table 11. What do you pay attention to when buying books?

<table>
<thead>
<tr>
<th>Factor</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cover design</td>
<td>8</td>
<td>50</td>
</tr>
<tr>
<td>Age-appropriate</td>
<td>7</td>
<td>43.75</td>
</tr>
<tr>
<td>Interior design</td>
<td>6</td>
<td>37.5</td>
</tr>
<tr>
<td>Nothing</td>
<td>4</td>
<td>25</td>
</tr>
<tr>
<td>Child’s interest</td>
<td>3</td>
<td>18.75</td>
</tr>
<tr>
<td>Child’s choice</td>
<td>2</td>
<td>12.5</td>
</tr>
<tr>
<td>Pedagogical aspects</td>
<td>-</td>
<td>0</td>
</tr>
</tbody>
</table>

According to Table 11, for the question “What do you pay attention to when buying books?” 8 out of 16 parents (50%) stated that they pay attention to the cover design.

VA3: He buys the book he likes. / VA7: If it includes the topics he likes based on his interests. / VB4: I get short stories with pictures according to my child's age. / VB5: I'm checking, I don't buy if it's bad. If there are no stain on the outside of the book, and it should not be torn.

The cover design is very important for children’s books, but giving priority to the cover and leaving the content behind is an inadequate approach when choosing a book. It is a very important finding that 7 parents (% 43.75) pay attention to the “age” level when choosing a book for their children. In this context, if the cover indicates the lower limit of the age group that the book addresses, it could be a positive guide for parents. As a result, it was seen that the parents had little information about the external-internal features of books, but paid more attention to these features when buying books for their children; however, they did not have enough knowledge about other pedagogical aspects.

Table 12. Do you allocate time to reading to your child at home?

<table>
<thead>
<tr>
<th></th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, 5-20 min. daily</td>
<td>8</td>
<td>50</td>
</tr>
<tr>
<td>Yes, 20-40 min. daily</td>
<td>3</td>
<td>18.75</td>
</tr>
<tr>
<td>No</td>
<td>4</td>
<td>25</td>
</tr>
<tr>
<td>Rarely</td>
<td>1</td>
<td>6.25</td>
</tr>
</tbody>
</table>

According to Table 12, for the question “Do you allocate time to reading to your child at home?” 8 out of 16 parents (50%) stated that they spent 5 to 20 minutes on a daily basis. 3 parents (18.75%) stated that they allocated 20-40 minutes to reading per day. While 4 (25%) parents did not spare any time for reading books, 1 parent stated that they rarely read books to their children. It is a positive finding that 8 out of 16 parents spend 5 to 20 minutes on a daily basis to build a reading culture. However, it is more important to focus on how the reading takes place; in other words, the quality of reading is an issue.

Table 13. Who reads most to the child at home?

<table>
<thead>
<tr>
<th></th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother</td>
<td>13</td>
<td>81.25</td>
</tr>
<tr>
<td>Father</td>
<td>7</td>
<td>43.75</td>
</tr>
<tr>
<td>Sister</td>
<td>2</td>
<td>12.5</td>
</tr>
<tr>
<td>No one</td>
<td>4</td>
<td>25</td>
</tr>
</tbody>
</table>

According to Table 13, for the question “Who reads most to the child at home?” 13 out of 16 parents with the highest rate, 81.25%, answered “mother.” 7 parents (43.75%) answered “father” and 2 parents answered “sister” whereas 4 parents indicated nobody to read books to the child at home. This finding shows that the person who reads books to children at home are usually mothers.
Table 14. When do you usually read to your child at home?

<table>
<thead>
<tr>
<th>Time</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>At night/Before sleep</td>
<td>12</td>
<td>75</td>
</tr>
<tr>
<td>In the evening</td>
<td>3</td>
<td>18.75</td>
</tr>
<tr>
<td>Never</td>
<td>3</td>
<td>18.75</td>
</tr>
<tr>
<td>After school</td>
<td>1</td>
<td>6.25</td>
</tr>
<tr>
<td>At the weekend</td>
<td>1</td>
<td>6.25</td>
</tr>
<tr>
<td>I’m planning to buy books from now on</td>
<td>1</td>
<td>6.25</td>
</tr>
</tbody>
</table>

According to Table 14, for the question “When do you usually read to your child at home?” 12 out of 16 parents, with the highest rate (75%), answered “before sleeping.” 3 parents (18.75%) answered “in the evening” or “never” whereas 1 parent answered “at the weekend” or “after school.”

VA4: I read in the evening; I think it is more efficient. / VA8: When I come from work in the evening or on Sunday at home./ VB5: At around 5-6 pm in the evening when his father comes home. / VB7: I read before sleeping, I want him to explain the book I read, I think it is efficient.

It is seen that the parents mostly prefer to read before going to bed and find that time more efficient for reading.

Table 15. Title of the last book read to the child

<table>
<thead>
<tr>
<th>Title of the last book</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannot specify a title</td>
<td>9</td>
<td>56.25</td>
</tr>
<tr>
<td>Can specify a title</td>
<td>7</td>
<td>43.75</td>
</tr>
</tbody>
</table>

According to Table 15, for the question “What is the title of the last book you read to your child?” while 9 parents (56.25%) could not specify a title, 7 parents, with a close percentage (43.75%), could specify a book title.

VA5: Good Habits. / VA8: Snow White and the Seven Dwarfs. / VB4: The Smart Fox and the Black Crow./ VB5: Life Studies.

As understood from the titles of the books specified clearly, the parents do not know the quality works in contemporary children’s literature and therefore they read their children poor quality books. On the other hand, it was observed that they do not know the basic features such as the author, illustrator and publisher of the book, which are significant elements of a book that enable the book to be perceived as a whole in the process of acquiring a reading culture.

Table 16. Do you have a library at home?

<table>
<thead>
<tr>
<th>Library at home</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>9</td>
<td>56.25</td>
</tr>
<tr>
<td>Yes</td>
<td>7</td>
<td>43.75</td>
</tr>
</tbody>
</table>

According to Table 16, for the question “Do you have a library at home? Can you write the title and the author of a book that you bought to your kid?” while 9 out of 16 parents (56.25%) stated that they had a library, 7 parents, with a close percentage (43.75%), stated they didn’t have a library.

VA2: We have a library. I do not remember the titles of the books, nor do I remember their authors. / VA8: Pinocchio, Snow White and the Seven Dwarfs. I can’t think of them more, nor do I remember the authors. / VA6: No, he puts them on the computer desk. / VB1: There is a library but no book. / VB4: We don't have a library, but we have books.
In acquiring a reading culture, it is important for children to have a library of their own, meet books at home in the preschool period, and have an access to books any time. As understood from the parents’ answers given in this part, the majority of the children do not have a library of their own. Also, it is seen that the ones having a library at home do not have quality books in their library.

**Findings regarding Pre-intervention Interview Questions Directed to Teachers**

**Question 1:** Do you have any knowledge about children’s literature?

AÖ: When I talk about children's literature, I think of "children's classics". (Little Red Riding Hood, Hansel and Gretel, Lead Soldier etc.)

BÖ: Short stories, fairy tales and children's classics.

As reflected in the answers, the teachers do not know the concept of children’s literature and cannot define it properly. However, they have knowledge that children’s literature consists of children’s classics.

**Question 2:** What do you pay attention to when recommending or buying books to your students?

AÖ: I make sure that it is illustrated, colorful and short. I also care very much that it is educational.

BÖ: I pay attention to the fact that it is appropriate for the child’s expectation and gender as well as it is colorful, illustrated, short, narrative, informative, and contributive to the child’s development.

As in the answers, the teachers did not have detailed information about the external-internal features and pedagogical aspects in a book selection process, and they did not express the qualities and artistic value that a book should have with respect to the child’s age and developmental characteristics, which are the main functions of children’s literature. On the other hand, they had knowledge about the general features such as pictures, short descriptions, and children’s expectations regarding a children’s book. This point indicated that the teachers do not have sufficient expertise in choosing a book to read to their students, and this could create a negative process when instilling the love of books in children.

**Question 3:** Do you allocate time to reading books to students at school?

AÖ: 5-20 minutes daily.

BÖ: 5-20 minutes daily.

As the answers revealed, teachers’ spending 5 to 20 minutes on reading at school per day is considered to be quite insufficient for children to acquire a reading culture. On the other hand, it was observed that the teachers did not organize regular and continuous reading hours during the 12-week observation period. Although one of the teachers tried to read books regularly, the books chosen did not reflect sufficient quality and appropriate features for children. Also, those books were age-appropriate for preschool children, which could cause them to be distant from listening to a book and could make teachers overwhelmed due to very long texts.

**Question 4:** Could you briefly explain how you carry out reading process?

AÖ: I dramatize the story I read as much as possible. In between, I ask short questions to the children.
**BÖ:** Before reading, I prepare my students with an activity such as a preparatory rhyme, a finger game, or a short poem, and read it by making animations with sounds appropriate to the characters in the story.

As in the answers, the teachers reflect sufficient knowledge to make the reading process effective and creative.

**Question 5:** Is there a library that children can use in the classroom?

**AÖ:** Yes.

**BÖ:** Yes.

Accordingly, it was seen that although there was a book corner spared in the classroom, modern and quality children’s books were not included in that corner. The number of the books was insufficient, as well.

**Question 6:** Could you write the titles and authors of the books you read to your students in the classroom?

**AÖ:** There are books of Kök and Erdem publications. In addition, we predominantly read books that are relevant to special days and weeks.

**BÖ:** Kök, Erdem, and Pusula publications on the basis of the subject to special days and weeks.

According to the answers, the teachers did not know the titles and authors of the books. It could be interpreted that teachers’ lacking knowledge about the titles and authors of the books is a limitation for building a reading culture and habit in their students.

**Findings regarding Mid-intervention Interview Questions Answered by Parents**

In this section, findings regarding the mid-intervention interview questions answered by the parents are discussed as a result of the 60-to-90-minute seminars given to the parents and teachers on a weekly basis during the first phase of the study.

**Table 17. What comes to your mind about children’s literature?**

<table>
<thead>
<tr>
<th></th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improving imagination</td>
<td>7</td>
<td>43.75</td>
</tr>
<tr>
<td>Age-appropriate</td>
<td>6</td>
<td>37.5</td>
</tr>
<tr>
<td>Including visuals and pictures</td>
<td>5</td>
<td>31.25</td>
</tr>
<tr>
<td>Appropriate to developmental areas</td>
<td>4</td>
<td>25</td>
</tr>
<tr>
<td>Free thinking / increasing curiosity</td>
<td>4</td>
<td>25</td>
</tr>
<tr>
<td>Artistic value</td>
<td>3</td>
<td>18.75</td>
</tr>
<tr>
<td>Facilitating the love of reading</td>
<td>3</td>
<td>18.75</td>
</tr>
<tr>
<td>Interests</td>
<td>3</td>
<td>18.75</td>
</tr>
<tr>
<td>Not giving advise / not dictating</td>
<td>3</td>
<td>18.75</td>
</tr>
<tr>
<td>Strengthening perceptions</td>
<td>2</td>
<td>12.5</td>
</tr>
<tr>
<td>Being short, clear, and precise</td>
<td>2</td>
<td>12.5</td>
</tr>
<tr>
<td>Communicating with characters</td>
<td>1</td>
<td>6.25</td>
</tr>
<tr>
<td>Author rapport with children</td>
<td>1</td>
<td>6.25</td>
</tr>
<tr>
<td>Having fun</td>
<td>1</td>
<td>6.25</td>
</tr>
<tr>
<td>Cover design</td>
<td>1</td>
<td>6.25</td>
</tr>
</tbody>
</table>
According to Table 17, for the question “Can you briefly explain what comes to your mind about children’s literature?” 9 out of 16 parents, with the highest rate (43.75%), stated that children’s literature improves imagination. The parents seeing the imagination feature as the most important element of children’s literature could be an indicator about the achievement of the seminars given to the parents. Another important finding is that 6 parents, with the second highest rate (37.5%), stated that books, as one of the most important elements of children’s literature, should be “age-appropriate.” This is because the definition and importance of children’s literature was frequently mentioned in our 6-week seminars. In the seminars, 0-14 ages were presented as “preschool, primary, and secondary school periods” in the process of building and acquiring a reading culture among children. And, the importance of making children meet books that are suitable for their age was also emphasized. Other responses frequently given by the parents regarding this question were as follows: “including visuals and pictures, being appropriate for developmental areas, free thinking and increasing curiosity, artistic value, facilitating reading, interests, not giving advice or not dictating.” As seen in the answers, external-internal features and pedagogical aspects as basic features of children’s literature were correctly understood by the parents. The parents’ responses in this part indicated the effectiveness of the seminars.

VA7: Children’s literature consists of short, clear and plain writings, not by giving advice, but by imagining the child’s interests and topics rather than ours as parents. It is the literature that take them into an imaginative world without boring them. / VA8: I learned that reading books is very nice and fun. I learned the ways to help the child love the book. / VB8: Helping emotions and thoughts, having artistic value, the author’s rapport with children, including pictures that take children to an imaginative world, communicating with and interpreting heroes. / VB7: Helping the child love books and reading. To help children get familiar with artistic books prepared in line with their age, interests and development.

Before the intervention, 14 parents had stated no or very limited knowledge about children’s literature. In this regard, the responses from all of the parents who attended the six-week seminars revealed how necessary and crucial the seminars were for them.

Table 18. Why is acquiring a reading culture is important to parents?

<table>
<thead>
<tr>
<th>Reason</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developing thinking skills</td>
<td>7</td>
<td>43.75</td>
</tr>
<tr>
<td>Improving imagination</td>
<td>5</td>
<td>31.25</td>
</tr>
<tr>
<td>For cognitive development</td>
<td>4</td>
<td>25</td>
</tr>
<tr>
<td>Developing the habit of reading</td>
<td>3</td>
<td>18.75</td>
</tr>
<tr>
<td>Enjoying reading and literature</td>
<td>3</td>
<td>18.75</td>
</tr>
<tr>
<td>Personal development</td>
<td>3</td>
<td>18.75</td>
</tr>
<tr>
<td>Choosing a quality book</td>
<td>3</td>
<td>18.75</td>
</tr>
<tr>
<td>For self-expression</td>
<td>2</td>
<td>12.5</td>
</tr>
</tbody>
</table>

According to Table 18, 7 out of 16 parents, with the highest rate (43.75%), mentioned developing of thinking skills as the reasons for acquiring a reading culture. The most basic function of acquiring a reading culture is to raise individuals who can think and question. In this context, parents’ adequate description of this concept reveals that the seminars achieved the goal of this study. On the other hand, 31.25% (5 parents) perceived improving imagination and 25% (4 parents) perceived cognitive development as one of the most important elements in the process of acquiring a reading culture.”

VA1: If a child likes books, he can think freely, move and speak. He can find a place in the society as an individual. / VA4: It is important for thinking and brain development throughout his life. / VA6: For the mental development of the child, and to increase his knowledge and imagination.
Other answers frequently given by the parents were as follows: “developing the habit of reading, enjoying literature and reading, personal development, choosing a quality book, and self-expression.” As seen in the answers, the parents learned and expressed the steps of acquiring a reading culture and the factors affecting this process.

Table 19. Features parents consider when buying books for their children

<table>
<thead>
<tr>
<th>Feature</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content</td>
<td>14</td>
<td>87.5</td>
</tr>
<tr>
<td>Being age-appropriate</td>
<td>13</td>
<td>81.25</td>
</tr>
<tr>
<td>Cover design</td>
<td>12</td>
<td>75</td>
</tr>
<tr>
<td>Author</td>
<td>3</td>
<td>18.75</td>
</tr>
<tr>
<td>Improving thinking skills</td>
<td>1</td>
<td>6.25</td>
</tr>
</tbody>
</table>

According to Table 19, 14 of the 16 parents, with the highest rate (87.5%), stated that they pay attention to the content when buying books for their children. In the first interview, 8 out of 16 parents had stated that they pay attention to the external design of the book. It is a positive development that the parents prioritize the content of the book, which reflects the quality, rather than the external design. At the same time, choosing books that increase imagination, curiosity and desire to read is important for children to acquire a reading culture. While they prioritize books that are understandable in terms of language and style, they reject books with imperative sentences, which is a crucial gain resulting from the seminars on choosing a quality book. 3 parents (81.25%) stated that they pay attention to whether it is age-appropriate for the child or not. In the preschool period, the responsibility for buying books for the children belongs to parents. For this reason, the parents’ prioritizing a book’s being age-appropriate for the child is an indication that the seminars achieved the goal. In other words, they became aware of the needs of children for different books of different quality at different ages. 12 parents (75%) stated that they pay attention to the external design of the book. When choosing books, it is important that parents gained sensitivity about the external feature of a book, as one of the basic principles of children’s literature. The percentage and quality of linguistic and visual texts are very important, as well, especially in the preschool period, in terms of developing the love of books in children. As a general point, it is an important finding that the parents learned the basic principles of children’s literature and tended to choose books according to external-internal features and age level.

VA1: I will now pay attention to the fact that it is portable, visual, easy on the eye, thought-provoking, and suitable for the age of the child as well as it has large font size. / VA2: I pay attention to the author and the pictures. The books that I want my child to listen to me without getting tired. Being appropriate for their age, being short and clear. / QB6: I pay attention to the books that make the content of the book thought-provoking and happy.

Accordingly, the parents learned to take the development of their children into account when buying books for their children and gained knowledge about famous writers of children’s literature. The most basic feature of a preschool child is the desire to know and get familiar with the life through games. As seen in the answers, some positive feedback was provided on this issue during the seminars.

Findings regarding Mid-intervention Interview Questions Directed to Teachers

In this section, findings regarding the mid-intervention interview questions directed to teachers are discussed as a result of the 60-to-90-minute seminars given to the parents and teachers every week during the first phase of the study.

Question 7: Could you briefly explain what you think about children’s literature?

AÖ: I can define children’s literature as (artistic) books suitable for the child’s age, interests and imagination.
BÖ: Children’s literature supports children’s perceptions, receptive and expressive features, and mental development as well as it prepares them for life.

Teachers stated that children’s literature should have some basic features such as “improving imagination, reflecting an artistic value, being suitable for age, interest and developmental areas of the child.” It is seen that the teachers who could not define children’s literature in the pre-intervention interviews later expressed important keywords related to children’s literature during mid-intervention interviews conducted after the seminars. Although the teachers gave different answers, the seminars were successful as the teachers tended to emphasize the basic and influential points of children’s literature.

**Question 8:** Why do you think the process of acquiring a reading culture is important?

AÖ: The process of acquiring a reading culture is important because it contains elements that will affect the whole life of the child, such as academic success, imagination, thinking, fluent speaking, and so on.

BÖ: Life begins with reading. I think we learn everything about life from books. Thinking, interpreting, keeping in mind, and so on. All of such features increase as we read.

As reflected in the answers, both teachers stated that reading culture is a process that affects and shapes the life. While explaining the importance of the process of acquiring a reading culture, the teachers emphasized its feature of “developing thinking skills.”

**Question 9:** What did you start to pay attention to when buying books for your students?

AÖ: Author, publisher, picture, content, age, child interest, etc.

BÖ: Books that are thought-provoking and interpretative; whose language does not tire the child; and whose pictures are lively and open to interpretation.

Accordingly, after the seminars the teachers started to pay attention to the basic principles of children’s literature such as external-internal features and age level when buying books for children. As for the external feature of the book, both teachers emphasized the importance of choosing books by checking the pictures. The pre-intervention interviews showed that the teachers had not had detailed information about how to choose a book. With the help of the seminars, the teachers adopted an accurate and effective attitude.

**Findings regarding Post-intervention Interviews with Children**

In this section, the findings regarding the post-intervention interview questions directed to the children at the end of the 12th week is presented.

**Table 20. What does a book mean to you?**

<table>
<thead>
<tr>
<th>Category</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>A very good/enjoyable thing</td>
<td>5</td>
<td>31.25</td>
</tr>
<tr>
<td>Something helping us learn and get knowledge</td>
<td>4</td>
<td>25</td>
</tr>
<tr>
<td>Something making reading easy</td>
<td>3</td>
<td>18.75</td>
</tr>
<tr>
<td>Family</td>
<td>3</td>
<td>18.75</td>
</tr>
<tr>
<td>Pictures</td>
<td>3</td>
<td>18.75</td>
</tr>
<tr>
<td>Something improving our imagination</td>
<td>3</td>
<td>18.75</td>
</tr>
<tr>
<td>Characters</td>
<td>1</td>
<td>6.25</td>
</tr>
<tr>
<td>Red Elephant</td>
<td>1</td>
<td>6.25</td>
</tr>
<tr>
<td>Something necessary</td>
<td>1</td>
<td>6.25</td>
</tr>
<tr>
<td>My friends</td>
<td>1</td>
<td>6.25</td>
</tr>
<tr>
<td>Stories/tales</td>
<td>1</td>
<td>6.25</td>
</tr>
</tbody>
</table>
As in Table 20, for the question “What does a book mean to you?” 5 out of 16 children with the highest rate (31.25%) answered “a very good/enjoyable thing,” 4 children (25%) answered “something helping us learn and get knowledge,” and 3 children (18.75%) answered “something making reading easy, family, pictures, something improving imagination.”

In the pre-intervention interviews, 5 out of 16 children stated that reading gives information; however, after the intervention, 5 out of 16 children answered “something very beautiful and entertaining,” which is an important indicator that the children reached a positive feeling about reading at 4 to 6 ages. On the other hand, the children had given more informative and familiar answers such as “painting, fairy tales-fairies, writing” before the intervention. However, at the end of the intervention, the children started to talk about the artistic dimension of reading such as improving imagination, making reading easy, or a necessary thing, all of which reflected the positive results of the intervention.

Table 21. Do you like books?

<table>
<thead>
<tr>
<th></th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>16</td>
<td>100</td>
</tr>
<tr>
<td>No</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

As in Table 21, all of the children answered “yes” to the question “Do you like books?” which is the same finding as the one in pre-intervention stage.

ÖA5: Yes, because it improves my imagination and does great things. / ÖA8: Yes, to be able to read... I am very happy when I read. / ÖB4: Yes, because the pictures are beautiful and the story is beautiful. / ÖB8: Yes, because I love it very much, there are pictures in them, I read it happily.

To the question “Would you describe a book that you remember?” the majority of the children gave answers related the books read to them during the six-week intervention. Most of the children remembered and described the book “Red Elephant” although it was read in the first week. The books titled “Colorful Movements Series” and “Birthday Gift” were also among the other books remembered frequently.

ÖA5: Red Elephant. The Red Elephant played hide and seek one night but could not find him. The Red Elephant knocked on the door. It sounded like a thump. / ÖB4: There was a crow, but I liked the book called Birthday Gift the most. / ÖB1: There was the book. The elephant was lost, the child was looking for him, the elephant's feet were muddy, he went into the forest. Then the elephant went into the painting.

Before the intervention, most of the children had given examples of books that lack quality and modernity by talking mostly about general content of the book and not by remembering the titles of the books. After the intervention, they started to give information about on the titles, characters and content of the books, which is a significant contribution of the study.

Table 22. Who do you read with mostly at home?

<table>
<thead>
<tr>
<th></th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother</td>
<td>11</td>
<td>68.75</td>
</tr>
<tr>
<td>Father</td>
<td>7</td>
<td>43.75</td>
</tr>
<tr>
<td>Big brother</td>
<td>1</td>
<td>6.25</td>
</tr>
<tr>
<td>No one</td>
<td>1</td>
<td>6.25</td>
</tr>
<tr>
<td>Siblings</td>
<td>1</td>
<td>6.25</td>
</tr>
</tbody>
</table>

As in Table 22, for the question “Who do you read with mostly at home?” 11 out of 16 children, with the highest rate (68.75%), answered “mother.” The fact that 7 children, with the second highest rate (43.75%), answered “father” shows that fathers are also involved in the reading process.
The fact that two children read with siblings indicated that children also perform reading with their siblings. In pre-intervention interviews, 9 out of 16 children had given the answer “mother” and 7 children as “father”. In the post-intervention interviews, the percentage of mothers increased and the percentage of fathers remained the same in responses to this question.

Table 23. Who do you enjoy reading with mostly?

<table>
<thead>
<tr>
<th></th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother</td>
<td>10</td>
<td>62,5</td>
</tr>
<tr>
<td>Father</td>
<td>6</td>
<td>37,5</td>
</tr>
<tr>
<td>No one</td>
<td>1</td>
<td>6,25</td>
</tr>
<tr>
<td>Sister/brother</td>
<td>1</td>
<td>6,25</td>
</tr>
</tbody>
</table>

As in Table 23, for the question “Who do you enjoy reading with mostly?” 10 out of 16 children, with the highest rate, 62.5%, answered “mother.” With the second highest rate, 6 (37.5%) of them gave the answer “father.” This finding once again revealed the importance of raising awareness among parents about building a reading culture.

Table 24. Do you have a library at home?

<table>
<thead>
<tr>
<th></th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>15</td>
<td>93,75</td>
</tr>
<tr>
<td>No</td>
<td>1</td>
<td>6,25</td>
</tr>
</tbody>
</table>

As in Table 24, for the question “Do you have a library at home?” 15 children (93.75%) answered “yes” while only 1 child (6.25%) answered “no.” The presence of a library in most of the children’s houses is an important finding considering their access to books and interaction with books. On the other hand, it is also an important issue whether the library is easily accessible for the child or whether the books reflect sufficient quality. On the other hand, while this number was 10 before the intervention, it increased to 15 after the intervention, which indicates that the seminars given to the parents on reading culture made a positive contribution and the parents became more about reading and created a library or a special book corner for their children at home.

ÖA1: There is, there is a shelf / ÖA3: There is. In the form of a ladder. Actually, it is a ladder, but we use it as a bookcase by the window. / ÖB6: Yes, mine and my brother’s books are put. They also put them into mine. / ÖB8: Yes, but my brother’s clothes are also put.

Table 25. Did you like the six-week reading intervention?

<table>
<thead>
<tr>
<th></th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>15</td>
<td>93,75</td>
</tr>
<tr>
<td>No</td>
<td>1</td>
<td>6,25</td>
</tr>
</tbody>
</table>

ÖA2: Yes, it was fun and informative. / ÖA4: I sometimes dreamed it when I read a book. Yes, because it gives very good information. / ÖB1: Yes, I liked it. Good, beautiful, sweet. Because it contains good information. / ÖB8: It added very good things. I liked the characters. There were puppets.

As Table 25, for the question “Did you like the six-week reading intervention?” 15 out of 16 children with the highest rate (93.75%) answered “Yes.” As understood from the answers, the children started to give feedback on the basic elements of children’s literature such as being fun, facilitating imagination, and arousing curiosity in addition to providing information.

Findings regarding Post-intervention Interview Questions Answered by Parents

This section presents the findings regarding the post-intervention interview questions directed to the parents in the last week of the study.
Table 26. Do you have any knowledge about children’s literature?

<table>
<thead>
<tr>
<th></th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>12</td>
<td>75</td>
</tr>
<tr>
<td>No</td>
<td>2</td>
<td>12.5</td>
</tr>
<tr>
<td>Partially</td>
<td>2</td>
<td>12.5</td>
</tr>
</tbody>
</table>

As Table 26 indicates, for the question “Do you have any knowledge about children’s literature?” 12 parents, with the highest rate (75%) answered “Yes.” In the interviews held in the first week of the study, 14 out of 16 parents had answered “No.” In the last week, a great majority of the parents, that is 12 out of 16, stated that they have knowledge about children’s literature, which is important for achieving the goal of the intervention. It is revealed that children’s literature should be known well to be able to introduce the book to the child and instill the love of books in the child.

VA1: From the moment my child is born, it is the creation of feelings and thoughts that enrich their age, developmental characteristics and areas of interest in a linguistic and visual way. / / VB7: There should be artistic expressions, not a dictating tone. The child should be able to perceive the message. / VB8: There is. Children’s literature is written to encourage children to love the book and to instill a reading culture in them to develop their critical thinking.

As seen in the answers, the parents who gave examples of books that are not suitable for children to listen and understand in the first interview stated the points they attached importance to by expressing “being appropriate for the child’s age and developmental characteristics and interests, improving imagination, being artistic, developing curiosity, not being directly instructive.” This shows a positive change among parents in relation to children’s literature and reading culture.

Table 27. Do you have any knowledge about reading culture?

<table>
<thead>
<tr>
<th></th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>15</td>
<td>93.75</td>
</tr>
<tr>
<td>No</td>
<td>1</td>
<td>6.25</td>
</tr>
</tbody>
</table>

VA3: Pictures inside and being the right book. / VA8: I think it helps us improve our knowledge, skills and personality. / QB4: Yes, my children want me to read stories every night before they go to bed, and I try to buy age-appropriate books. / VB7: Yes, reading culture is a long process. It is better to settle it in childhood.

According to Table 27, for the question “Do you have any knowledge about reading culture?” 15 out of 16 parents, with the highest rate (93.75%) answered “Yes.” Thus, it was seen that the parents gained knowledge about reading culture through the seminars. Although the majority of parents do not fully explain the concept of reading culture from a theoretical perspective, the answers they gave reflected some important feedback highlighting the necessary points in building a reading culture.

Table 28. What do you pay attention to when buying books?

<table>
<thead>
<tr>
<th></th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cover design</td>
<td>9</td>
<td>56.25</td>
</tr>
<tr>
<td>Child’s age</td>
<td>4</td>
<td>25</td>
</tr>
<tr>
<td>Internal design</td>
<td>3</td>
<td>18.75</td>
</tr>
<tr>
<td>Child’s interest</td>
<td>3</td>
<td>18.75</td>
</tr>
<tr>
<td>Easy to understand (for the child)</td>
<td>1</td>
<td>6.25</td>
</tr>
<tr>
<td>Teaching lessons</td>
<td>1</td>
<td>6.25</td>
</tr>
<tr>
<td>Improving imagination</td>
<td>1</td>
<td>6.25</td>
</tr>
<tr>
<td>Author</td>
<td>1</td>
<td>6.25</td>
</tr>
<tr>
<td>Explanatory information on the back cover of the book</td>
<td>1</td>
<td>6.25</td>
</tr>
</tbody>
</table>
According to Table 28, for the question “What do you pay attention to when buying books?” 9 out of 16 parents (56.25%) answered “cover design” and 4 parents (25%) answered “age-appropriate.”

VA7: Her interests and skills, not boring for reading or listening. / VA8: The books that they can understand and learn from. / VB4: Being age-appropriate, its print quality, its pictures. / VB7: The author of the book, its outer cover, the explanatory information on the back page, etc. / VB8: I choose according to his age and the pictures. Usually, he likes and buys it.

As seen in the answers, the parents became more selective when buying books for their children in terms of the basic principles of children’s literature.

Table 29. Is there a change about the time you spend reading to your child at home?

<table>
<thead>
<tr>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, daily 5-20 min</td>
<td>10</td>
</tr>
<tr>
<td>Yes, daily 20-40 min.</td>
<td>3</td>
</tr>
<tr>
<td>No</td>
<td>3</td>
</tr>
</tbody>
</table>

As in Table 29, for the question “Is there a change about the time you spend reading to your child at home?” 10 out of 16 parents, with the highest rate (62,5%), stated that they spent 5 to 20 minutes on a daily basis. 3 parents (18,75%) stated that they allocate 20-40 minutes to reading per day. And only 3 parents did not spare any time for reading books.

Table 30. Who reads to the child mostly at home?

<table>
<thead>
<tr>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother</td>
<td>14</td>
</tr>
<tr>
<td>Father</td>
<td>2</td>
</tr>
<tr>
<td>Sister</td>
<td>1</td>
</tr>
<tr>
<td>No one</td>
<td></td>
</tr>
</tbody>
</table>

As in Table 30, for the question “Who reads to the child mostly at home?” 14 out of 16 (87,5%), answered “mother.” 2 parents (2,5%) answered as “father.” This finding shows that the person who reads books to children at home are mostly mothers.

Table 31. When do you usually read to your child at home?

<table>
<thead>
<tr>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>At Night/Before Sleep</td>
<td>8</td>
</tr>
<tr>
<td>Never</td>
<td>3</td>
</tr>
<tr>
<td>In the evening</td>
<td>1</td>
</tr>
<tr>
<td>After school</td>
<td>1</td>
</tr>
<tr>
<td>At the weekend</td>
<td>1</td>
</tr>
<tr>
<td>I'm planning to buy books from now on</td>
<td>1</td>
</tr>
</tbody>
</table>

According to Table 31, for the question “When do you usually read to your child at home?” 8 out of 16 parents (50%) answered “before sleeping.” 3 parents (18,75%) answered “never.” The parents had preferred to read to their children before sleeping in the pre-intervention stage, and similarly they still find time period more efficient. The other answers included “in the evening, after school, at the weekend.” The fact that 1 parent is thinking of buying a book from now on shows that the seminars given to the parents had a positive effect on the parents and that the purpose of the project were fulfilled.
Table 32. Title of the last book read to the child

<table>
<thead>
<tr>
<th></th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can specify a title</td>
<td>14</td>
<td>87.5</td>
</tr>
<tr>
<td>Cannot specify a title</td>
<td>2</td>
<td>12.5</td>
</tr>
</tbody>
</table>

According to Table 32, for the question “What is the title of the last book you read to your child?” while 14 out of 16 parents, with the highest rate, 87.5%, were able to specify a title, only 2 parents couldn’t specify a book title. This is a significant improvement caused by this study.


It is noteworthy that the general features of the book, such as the author, illustrator, or the publishing house were ignored. However, it is important that a few parents attending the seminars regularly mentioned the authors of the books.

Last Question: What were the contributions of the seminars given to you and the activities we did with your children?

VA1: I learned that the content of every book is not suitable for my child, that I should not read every author’s book to my child, the size, and that visuality and content of the texts are very important. VA4: My child already loved listening to stories, however now he became more enthusiastic and curious. / VA2: My child gained the love of books; he wants me to read books to him. His interest in books increased. Every time we read; he wonders about the ending. He always wants to buy and choose a book. / QB4: I understood the importance of reading much more. My child's development and his school life in the future. His vocabulary is developing, he started to speak more properly. First of all, he wants me to read books to him.

As reflected in the answers, as a result of the seminars and reading activities, a positive was observed in relation to how they could benefit from the children’s literature in the process of building a reading culture. It is seen that the parents gained awareness about how to choose a book that is suitable for a child’s interest, its external-internal features and pedagogical aspects, whether it increases curiosity, vocabulary, academic achievement, and so on.

Findings regarding Post-intervention Interview Questions Directed to Teachers

Question 10: Do you have any knowledge about children’s literature?

AO: We can say books appropriate for age, feelings and thoughts of children.

BO: They are informative works that help children’s feelings, thoughts, and imaginations improve.

The teachers’ answers reflected that the concept of children’s literature was understood well with the help of the seminars given to parents and teachers. Before the intervention, both teachers stated that children’s literature consists of children’s classics. However, after the intervention, the teachers replied that children’s literature should consists of the books that develop children’s imagination and thinking skills and that are appropriate for their age level. Preschool teachers’ awareness of children’s literature is such a positive point that they could effectively guide children from an early age in acquiring a reading culture.

Question 11: Do you have any knowledge about the reading culture?
AÖ: The culture of reading is choosing a book at a young age in line with your interests and desires and taking time to read.

BÖ: Reading culture can be a strong habit if established on solid foundations and gained in the family.

As in the answers, the teachers gave important information about the foundations of the reading culture by describing it as an indispensable thing that the child should acquire at an early age and choose books accordingly. The fact that the teachers who had no knowledge in the first interview developed an understanding of the essence and meaning of the reading culture is also a very important result of the study.

**Question 12:** What do you pay attention to when recommending or buying books to your students?

AÖ: I pay attention to its suitability for age level, its author, its print quality and its language.

BÖ: I try to choose books that are suitable for children’s age, developmental expectations and needs, as well as that encourage creative thinking.

As in the answers, seeing “children’s age and developmental characteristics” as the most important element of book selection process indicates the effectiveness of the seminars. On the other hand, the answers about the expectations and needs of the children and promoting creative thinking are the fundamental steps in establishing a bridge between children and books and creating the love of books. Other elements such as “its external-internal features, print quality, language,” also provide important feedback on raising an awareness among the teachers through the seminars.

**Question 13:** After the intervention, is there a change about the time you spend reading books to your students at school?

AÖ: No, Daily 5-20 min.

BÖ: No, Daily 5-20 min.

As in the answers, despite the seminars given during the intervention, the teachers’ spending 5 to 20 minutes on reading in the classroom is insufficient for children to develop positive attitudes towards reading and to acquire a reading culture.

**Question 14:** Could you briefly explain how you carry out reading process?

AÖ: By adjusting my tone of voice to the characters in the book, sharing pictures with children and asking them questions.

BÖ: Before starting the story, I definitely prepare a pre-story activity such as a tongue twister, poem, or finger game. After I talk about the topic and feel they are ready, I move on to the story.

As in the answers, the teachers had sufficient information about how to carry out the reading process just as they did before the intervention.

**Question 15:** Has there been any changes qualitatively or quantitatively in the books you read in class after the intervention?

AÖ: There has definitely been. Now I pay much more attention to the books we buy. I give much more time to children to interpret the books.
BÖ: I try my best to choose stories that teach less, do not judge, make children think and increase their imagination.

As seen in the answers, there appeared positive changes in teachers’ selection of children’s books in general and for in-class purposes. For both teachers, it is important for children to be careful to interpret the books and to gain thinking skills starting from the early period. On the other hand, the teachers expressed that children’s books should stimulate imagination, not by judging or giving advice. The teachers seemed to put this understanding into practice in their classroom, which is an indicator of the achievement of the study.

**Question 16:** What were the contributions of the seminars given to you and the activities done with your students?

**AÖ:** As I mentioned above, I specifically pay attention to the author and illustrator when buying books. As I read the book, I take the children more into the book.

**BÖ:** I am more careful when choosing a story for the classroom. Even the content of the questions asked by the children has changed. They started to give more logical answers.

As reflected in the answers, there appeared positive changes in teachers as a result of the seminars given to them as well as of the reading done with children in both classes. During the seminars and reading activities, it was frequently emphasized that “the author and illustrator of a book should be known by teachers and parents and be expressed with emphasis to children.” The fact that the teachers appreciated this information is also very important for the project to achieve its goal. In other words, teacher awareness is important to create the love of reading and build a reading culture among preschoolers.

**DISCUSSION**

This study was carried out to create a reading culture among preschoolers, teachers and parents, who are the main stakeholders in the preschool period. This section discusses the results of the interview questions answered by the children, parents and teachers during the intervention that lasted for 12 weeks. Besides, mid-intervention interview questions answered by the parents and teachers at the end of the six-week seminar are also presented.

**Discussion of Pre-intervention and Post-intervention Interviews with Children**

It is known that children first meet books before starting school either at home or through people around them (Altun, 2013; Demircan, 2012). In this study, 68.75% of the children stated that they first met a book “at home.” For this reason, parents should be conscious about this issue and create positive home environments that would allow their children to get to know books.

68.75% of the children did not remember the title of the book they read and gave general information about the content and pictures. The title and author of a book is the first stimuli for the child to establish a connection with the book (İnce Samur, 2014; Sever, 2010; Turgut Bayram, 2009). For this reason, the importance of knowing its title, its author and the illustrator was emphasized in the seminars given to the teachers and parents and during reading activities done with children. All of the children (100%) gave short answers while explaining the book they remember. However, the titles of the books they gave were not among the quality works of contemporary children’s literature.

31.25% of the children associated “books” with “reading” in the pre-intervention interviews. Other answers were “happiness, letters, fairy tales, fairies, pictures, animals.” As understood from the answers, they are mostly related to the reading aspect of books and the content. In the post-intervention interviews some at the end of the 12th, 31.25% of the children described books as “very
nice and entertaining things” indicated the fun side of reading. Besides, they started to make inferences about the intellectual and artistic dimensions of reading (Dilidüzgün, 2018; Lukens, 1999) in particular with the answers stating that books improve their imagination. In this regard, it is effective to carry out reading activities with books prepared for children with an artist sensitivity and practices that could turn reading into an enjoyable activity. All (100%) of the children said that they liked books.

In the pre-intervention interviews, 56.25% of the children reported they read books with their mothers. The number of children who read books with father (43.25%) was also close to that. On the other hand, the post-intervention interviews showed that 68.75% of the children reported reading books with their mothers, which means the percentage of reading books with the mothers increased while the percentage of reading with fathers remained the same (43.75%). Those ratings could imply that first mothers and then fathers have an active role in reading at home.

In the pre-intervention, half of the children stated that they enjoyed reading books with their mothers (50%) and then with their fathers (37.5%). This point reveals the importance of raising the awareness of parents about reading culture (Aydoğan & Çat, 2012; Cengiz, 2013; Çakmak & Yılmaz, 2009; Şahin, E. Y; Çelik, G. and Çelik, B., 2012; Unutkan , 2006; Yağcı, 2007). In the post-intervention interviews, 62.5% reported enjoying reading books with their mothers and 37.5% with their fathers. Accordingly, the percentage of enjoying reading books with mothers increased after the intervention, while the percentage of enjoying reading books with fathers remained the same. This point also reveals that mothers take a more active role in reading books and so they should be taken into consideration while giving education about building a reading culture.

62.5% of the children stated they had a library at home in the pre-intervention interviews. Having a library at home is an important factor for children’s access to and interaction with books as well as the love of reading (Kakırman Yıldız, 2017; Karabay, Ası, & Atan, 2016; Kıldan, 2007; Parlakyıldız & Yıldızbaş, 2004; Sangkaeo, 1999). As a result of the intervention, the percentage of those having a library at home increased to 93.75% at the end of the 12th week. This change could mean that the seminars given to the parents for 6 weeks encouraged the parents to create a library or a special book corner for their children.

A great majority of the children (93.75) stated that they liked the 6-week reading activities, because at the end of the 12th week, they started to give feedback on basic elements of children’s literature such as “being fun, stimulating imagination, creating curiosity, paying attention to the title, author or even the illustrator” besides giving information about the book. The children having no knowledge or prediction about the title, author, or illustrator of a book before the intervention, started to ask questions like “What is the title of this book? Who wrote it? Who is the illustrator?” and make comments like “Perhaps one day I will write a book or draw pictures of it”, which is a significant achievement of this study.

Overall Evaluation of Pre-, Mid-, and Post-intervention Interviews with Parents

43.25% of the parents stated that they start to read books to their children between the ages of 4 to 6, which shows that a significant age period (0-2) is usually skipped and children meet books in preschools. This finding shows that most parents are not well aware of the ties between children and books, the process of getting to know books, and the right time for children to meet the book. The study by Ersoy and Bayraktar (2015) claimed that the mothers who received undergraduate and graduate education were more conscious about introducing books to their children at the age of 1.

87.5% of the parents reported no knowledge of children’s literature pre-intervention interviews, which is a striking finding showing the significance of this study. The percentage of the parents introducing books to their children at 0-2 ages (31.25%) and the parents never introducing books to their children at 2-4 ages(0%) also confirmed this finding. Even the parents who stated that
they had little knowledge gave no examples of quality works from children’s literature. They mentioned books that were not suitable for children and far from bringing artistic and aesthetic values.

As for children’s literature, 43.75% of the parents described it as “improving imagination” in the mid-intervention interviews. Secondly, 37.5% of the parents gave answers related to the “age-appropriate” feature of books. And other answers were about “including visuals or pictures, being appropriate for developmental areas, encouraging free thinking, increasing curiosity, having artistic values.” However, in the pre-intervention interviews, almost all of the parents (87.5%) reported no or very limited knowledge about children’s literature. As a result of the six-week seminars given to the parents, they achieved important outcomes about children’s literature. As seen from their responses, the internal-external features and pedagogical aspects of children’s literature were correctly understood by the parents. The change in the parents reveals how important and necessary this study is.

75% of the parents reported having information about the definition of children’s literature at the end of the intervention. Considering that 87.5% of them did not have any knowledge about children’s literature in the pre-intervention period, such a positive change in their knowledge shows that the seminars were effective. A lot of publishers do not provide information about the target age group of books, which makes it difficult for parents and even teachers to choose a book. On the outer cover, giving the lower age limit of the target group would provide a useful guidance. While the parents had some knowledge about and paid attention to the external-internal features of books when buying books for their children, they did not have sufficient information about the pedagogical aspects of books. During the pre-intervention interviews, 50% of the parents claimed to pay attention to the external features (Biçici, 2006) when buying a book for their children. The external feature is very important, but giving priority to the external features but leaving the content in the second place is an inadequate approach. Additionally, another important finding is that 43.75% pay attention to the age level when choosing a book for their children.

In the mid-intervention interviews, 87.5% of the parents claimed to pay attention to the content features when buying books for their children. Secondly, 81.25% of the parents claimed to choose age-appropriate books. It is an expected and positive attitude of parents to get to know their children well and introduce better books to them. Similarly, choosing books that increase imagination, curiosity and desire to read is important for children to acquire reading culture. Their prioritizing the books that are easy to understand and fluent in language but not the ones with imperative sentences is an important outcome of the seminars given to the parents. In the post-intervention interviews, 56.25% of the parents paying attention to the external features when buying books for their children and 25% claimed to pay attention to the age limit.

In the pre-intervention interviews, 50% of the parents spent 5-20 minutes a day on reading to their children and 4 out of 16 parents (25%) never spent any time. However, at this point, how the reading takes place and the quality of reading is a more important issue. After the intervention, 62.5% of the parents started to spend 5-20 minutes daily on reading books to their children. The fact that this percentage, which was 50% before the intervention, increased to 62.5% could imply that the study had a positive effect on the parents. On the other hand, the percentage of the parents spending no time on reading books to their children decreased from 25% to 18.75% as a result of the intervention, which helped the parents become more willing and conscious to spend more time on reading books to their children.

In the pre-intervention interviews, 81.25% of the parents indicated “mothers” as the person reading mostly to children at home, which was the same in the children’s answers. Similarly, in the post-intervention interviews, 87.5% of the parents indicated “mothers” as the person who reads mostly to children at home and 12.5% of them indicated “fathers.” Based on these findings, while the percentage of mothers increased, the percentage of fathers decreased. The increase in the mothers’ rate a positive outcome of the seminars.
75% before the intervention and 50% after the intervention reported reading books to their children “at night or before sleep.” It could mean that the parents mostly prefer to read books to their children before sleep and find this time period more efficient. The fact that one parent was planning to buy books from now on indicated the effectiveness of the seminars given to the parents.

While 56.25% of the parents could not specify the title of the last book they read to before the intervention, 87.5% were able to specify the title of the book after the intervention. However, the book titles given as examples did not belong to quality works of contemporary children’s literature. Furthermore, they seemed to ignore the features that allow the book to be perceived as a whole, such as its author, illustrator, and publisher, which are important elements for acquiring a reading culture.

After the intervention, most of the parents were able to specify the title of the last book they read to their children. However, before the intervention, more than half of the parents could not specify the title of the book. Knowing and remembering the title of the book was an important achievement for this project. It is an important finding that a few parents who attended the seminars regularly could name the author of the book.

Before the intervention, 56.25% of the parents stated that they did not have a library at home. However, it is understood from the answers that not a suitable environment for a library existed at home. When acquiring a reading culture, it is highly important for the child to have a library of his own, meet books at home in the preschool period, and access books any time. As in the answers, the majority of children did not have a library of their own or the ones having a library did not have quality books.

Before the intervention, 43.75% of the parents indicated “improvement of thinking skills” as the importance acquiring a reading culture, which is another achievement of the seminars. Additionally, answers like “increasing imagination” and “cognitive development” were also other clues that the whole process was understood well. Similarly, the parents, who expressed only “informative” side of reading before the intervention, started to address the literary and artistic dimensions of reading in improving thinking skills, which also revealed the significance of this study.

According to the parents’ responses, there has been a positive change regarding how they should benefit from the quality works of children’s literature in the process of acquiring a reading culture as a result of the seminars. It is seen that parents gained awareness on issues such as “how to choose a book for children.”

Overall Evaluation of Pre-, Mid-, and Post-intervention Interviews with Teachers

In the pre-intervention interviews, the teachers did not know the definition of the concept of children’s literature but thought that children’s literature consists of children’s classics. Such insufficient knowledge about children’s literature indicated that the teachers could fail in guiding their students when building a reading culture. However, in the mid- and post-intervention interviews, the teachers stated that children’s literature products should have basic features such as “improving imagination, including artistic values, being suitable for age, interest and developmental areas of children.” It is seen that the teachers who could not define children’s literature before the intervention expressed important keywords related to children’s literature after the intervention. This is an important indicator that preschool teachers’ increased awareness would be a positive step to provide an effective guidance to children at an early age when acquiring a reading culture.

In the pre-intervention interviews, the teachers did not have detailed information about external-internal features and pedagogical aspects when choosing a book and they could not express the basic elements such as age level and developmental characteristics of children. On the other hand, they had general information about features such as pictures, short descriptions, child expectations of a preschool book.
However, in the mid- and post-intervention interviews, the teachers stated that they pay attention to the basic principles of children’s literature when buying books for their students. Both teachers emphasized the importance of choosing books according to the external features, particularly the “pictures.” Besides, prioritizing features such as “being appropriate for age level, development of children, their expectations and needs; encouraging them to think creatively; its print quality, and having a clear language” indicated that the teachers became more conscious about the external-internal features of books through the seminars.

In addition, the teachers who did not know the authors of the books before the seminars started to pay attention to the authors when choosing books after the seminars. In short, the teachers’ awareness is the fundamental steps in establishing a bridge between children and books and creating the love of books.

Before the intervention, the teachers’ spending 5 to 20 minutes on reading at school per day was considered to be quite insufficient for children to acquire a reading culture. After the intervention, despite the six-week seminars given to the teachers, teachers’ spending 5 to 20 minutes on reading per day in the classroom was still insufficient for children to develop a positive attitude towards reading. It is essential to work more on this issue to raise awareness among teachers.

It was seen that the teachers had sufficient information about how to carry out the reading process in both pre-intervention and post-intervention interviews. It was also seen that although there was a book corner spared in the classroom, modern and quality children’s books were not included in that corner. The number of the books was insufficient, as well.

The teachers did not know the titles and authors of the books in the pre-intervention interviews. This was considered as a drawback when creating a reading culture. However, in the mid-intervention interviews, they stated that the reading culture is an important process that affects and shapes the whole life. While explaining the importance of acquiring a reading culture, the teachers emphasized particularly its feature of “improving thinking skills.”

After the seminars, the teachers claimed to have knowledge about the process of acquiring a reading culture. As deduced from the answers, there have been positive changes in teachers, in terms of both when choosing a book and reading a book in the classroom. Both teachers reflected sensitivity towards children’s interpretation of books and the thinking skills starting from the early years, which is a significant effect of this study.

On the other hand, the teachers expressed that children’s books should stimulate imagination, not by judging or giving advice. The teachers seemed to put this understanding into practice in their classroom, which is also another indicator of the achievement of the study. As deduced from the responses, there have been positive changes in teachers with the help of the seminars given to them and reading activities done with children in both classrooms within the scope of the study. In the seminars and reading activities, the idea that “the author and illustrator of a book should be known well by teachers and parents” was frequently emphasized and repeated. Seeing this message’s being understood is a very important indicator of the achievement of the study. In other words, teacher awareness is essential to create the love of reading and build a reading culture among preschoolers.

**Overall Evaluation of the Observation Forms**

Before the intervention, a great majority of the children claimed to like reading books. However, children in Section A, where books are read regularly, were more interested and ready than the children in Section B. Furthermore, the children who regularly read books at home were able to give more details about the plot and characters in the books. In this context, the quality of the reading environment at home is as significant as the one the school. On the other hand, the books that teachers read at school were very long, ordinary, and short of artistic sensitivity. For this reason, both the
teachers and the children got bored after a while, became distracted and did not enjoy the act of reading well.

In the reading activities carried out during the second phase of the study, it was observed that the children enjoyed the act of reading with quality books of children’s literature and listened carefully. In summary, it is predicted that building a creative “reading environment” with the quality works of children’s literature will enable children aged 4 to 6 to gain the love of reading better.

**Overall Evaluation of Participant Diaries**

Participant diaries were distributed to the parents to be filled in at home. When the diaries of the first week were evaluated, it was seen that most of the parents were interested in reading culture but did not have enough consciousness. Parents cared about their children’s reading, but they did not know that their children’s age levels, interests and needs are the most determining factors regarding this issue. As a result of this situation, parents were unable to select quality books. It is a natural consequence that the child who cannot meet quality books show little interest for a short period of time and cannot continue the act of reading or listening. In the process of acquiring a reading culture, it is necessary that teachers at school and parents at home create integrity and cooperation to guide this process.

When the diaries were evaluated after the intervention, it was seen that most of the children remembered the book read to them at school. However, even though they tell when their parents ask at home, they did not want to talk about the book again. One of the reasons for this situation could be the lack of school-family cooperation. At this point, teachers have important responsibilities. Teachers should ensure that parents provide the book to be read each week at the beginning of the semester and create a reading program to reinforce reading at home. Thus, an awareness could be created in relation to the title, author, illustrator, and content of books and a connection with books as well as the love of books could be ensured.

**CONCLUSION**

This study was carried out create a theoretical and practical process about building a reading culture among preschoolers, teachers, and parents and to track the changes in them. The findings revealed that the children had intended awareness, desire and tendency towards the author, title, and illustrator of books and reading. This judgment was reached with the support of teachers and parents’ views. At the same time, it was seen that when an effective reading environment is created with quality books, the parents also enjoy reading books and connect with books. On the other hand, the teachers and parents gave feedback that could be useful to their students or children and even themselves in the process of acquiring a reading culture with the quality works of children’s literature.

The knowledge that the teachers and parents should support the quality books through effective reading processes was provided during the intervention and demonstrated through sample activities. However, it is known that experience is gained as long as knowledge is put into practice. For this reason, it is important that adults should not compromise on doing research with this awareness and making regular and continuous reading activities with children. In this context, similar studies should become widespread and systematic interventions should be arranged to build a reading culture.

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Examining The Relationship Between Pre-Service Turkish Teachers Digital Writing Attitudes and Digital Reading Tendencies

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Abstract

This research aims to determine the relationship between pre-service Turkish teachers’ digital writing attitudes and their digital reading tendencies. In this context, 167 teacher candidates from different grades studying in the Turkish language teaching program of a state university in the west of Turkey were consulted. The relational surveying method, one of the quantitative research methods, was used. "Digital Writing Attitudes Scale" and "Digital Reading Tendencies Scale" were used as data collection tools in the study. The obtained data were analysed with the SPSS package program. Since it was determined that the data showed normal distribution due to the assumption analysis of the findings, independent sample t-test and one-way ANOVA analyses were used in the research. In addition to these parametric tests, mean scores and standard deviation scores of the descriptive analysis results were used. As a result of the data analysis, it has been seen that pre-service Turkish teachers’ digital writing attitudes and digital reading tendencies are at a high level. There has been no significant difference observed in the results in terms of participants gender for the convenience and motivation sub-dimensions of the scale. However, digital writing attitudes show a significant difference favouring female teacher candidate in the effect sub-dimension. According to the class variable, Turkish teacher candidates' digital writing attitudes show a significant difference in favour of small classes. The research findings concluded a moderate, positive, and significant relationship between pre-service Turkish teachers’ digital writing attitudes and their digital reading tendencies. In order to provide digital transformation and dispositions, the positive and negative aspects of reading and writing in digital tools can be thoroughly researched, and improvements can be made by reviewing the existing tools.

Keywords: Digital Reading, Digital Writing, Turkish Education

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INTRODUCTION

The development, use and prevalence of language show differences depending on the conditions and opportunities in each age. Automation systems, information and digital technologies developed in the 21st century have caused significant changes in all life conditions of human beings. A new era of communication has been started with the new mass media tools. It is understood that these changes are adopted by society (Güneş, 2016). In this period, the source prefers and uses online virtual systems more intensely as a channel to reach the target audience. In years, media has started to transform into new media by moving to digital environments. The transformation of the media to new digital media started especially with periodicals, and other printed media tools have been followed. This transformation has led to new communication, literacy and education process. In addition to these new process, language skills and literacy have begun to be reinterpreted with the word digital.

Traditionally, literacy has meant that individuals can read and write the language shared in a particular culture. Digital literacy is not an alternative or a replacement for traditional literacy. Digital literacy is the literacy that exists in online environments depending on the needs of the age (Churchill, Oakley and Churchill, 2008). Digital literacy is one of the most important skills of the 21st century. Digital literacy is a term beyond using digital tools and technologies. Digital literacy includes different stages of processing information, which are accessing information over online tools, organising it, analysing it, interpreting it, evaluating it, communicating it and producing it (Akkoyunlu and Soylu, 2010; Churchill, 2016; Gilster, 1997).

Theoretically, the field of reading skill includes dimensions, processes, skills and techniques (Güneş, 2016; Özbay, Bağcı, and Uyar, 2008; Özbay and Özdemir, 2014). Before the 1940s, the reading skills of individuals who were able to analyse and make sense of symbols in a written text were evaluated differently. Later, the concept of the reader has changed in terms of meaning. Apart from written texts, the processes of making sense of nature and social events through media such as pictures, sketches, graphics, and cartoons and structuring processes in mind are included in the concept of reading (Akkaya and Toprak, 2021; Eryaman, 2007; Özden, 2019). The printed materials are constant. Reading the printed materials makes it possible to review the titles and review and master the general text. Digital texts have variable motion and dynamic structures. When reading digital texts, the entire text can not be seen. It can be accessed as much as shown on the screen. Reaching the remaining parts may not be as easy as in printed texts. The level of ease of reading may differ depending on the possibilities and offers of the electronic device. For this reason, it may be necessary to spend more energy reading digital texts.

Writing as a means of communication has been used in different ways by the world's nations for centuries (Karatay, 2011). The invention that most served and contributed to civilisations is the invention of writing. It is considered as recording the communication. As a channel for transmitting the message to the target audience in the past ages, cuneiform, hieroglyphs, papyrus and parchments were used. Writing skill has become unthinkable in one dimension with current technological tools. Today, virtual reality and augmented reality applications are available in digital online environments (Erbaş and Demirer, 2015). In this way, shorter and more concise statements can be made that appeal to more sense.

Technology will have been changed in future. With the quantum age, quantum computers and devices will be indispensable parts of our lives. However, the theoretical sources of comprehension and expression skills will continue to have a guiding effect. 4+1 Planned writing and evaluation model will guide obtaining a well-written expression product in the future (Karatay, 2011). More generally, the theories, principles, purpose and importance of reading and writing education will continue to exist (Ahmed Abdo Shaban, 2002; Avci and Çelik, 2019; Fişekcioglu, 2019; Güneş, 2016; Göcer, 2018; Karatay, 2011; Kurudayoglu and Çetin, 2015; Mülüdör and Çevik, 2021; Özbay, Bağcı and Uyar, 2008; Üstabulut, 2021).
Reading and writing are not just a tool for pleasantly spending time. These actions include learning, interpretation and critical thinking (Güneş, 2016). Reading and writing are not just skills, which are used and developed for educational purposes. Reading and writing skills are a need throughout life. In this phase, where digital tools and products become widespread, teachers should follow the change and development, improve themselves and guide students (Aytan, Güneş, and Çalıcı, 2018; Eryaman, 2008).

In line with the explanations made, this study, it is aimed to reveal the relationship between the digital reading tendencies of pre-service Turkish teachers’ and their digital writing attitudes. Thus, it is thought to understand pre-service teachers' perceptions about reading and writing in the digital environment. The research problems determined in accordance with the purpose of the research are presented below:

1. What is the digital writing attitude of pre-service Turkish teachers?
2. What is the level of digital reading tendencies of pre-service Turkish teachers?
3. Do pre-service Turkish teachers’ digital writing attitudes show a significant difference according to gender, class and academic achievement variables?
4. Do pre-service Turkish teachers’ digital reading tendencies show a significant difference according to gender, class and academic achievement variables?
5. Is there a relationship between the digital writing attitudes of Turkish teacher candidates and their digital reading tendencies?

**METHOD**

**Research Design**

In this study, the relational surveying model, one of the quantitative research methods, was used to examine the relationship between the digital writing attitudes of pre-service Turkish teachers and their digital reading tendencies. Studies in which data are collected to determine certain characteristics of a group are called survey research (Büyüköztürk, Çakmak, Akgün, Karadeniz, and Demirel, 2018). In relational surveying models, the existence or degree of change of two or more variables together is tried to be determined (Karasar, 2007). In this study, pre-service Turkish teachers’ digital writing attitudes and their digital reading tendencies and the relationships between variables in the data collection tool were examined.

**Participants**

The research sample group consists of 167 pre-service Turkish teachers studying at Çanakkale Onsekiz Mart University Department of Turkish Education. Descriptive statistical analyses of the study sample group are given in table 1, table 2 and table 3.

<table>
<thead>
<tr>
<th>Table 1. Distribution of research participants by gender</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td>Male</td>
</tr>
</tbody>
</table>

When Table 1 is examined, it is seen that 68.9% of the study participants are female, and 31.1% are male.
Table 2. Distribution of the participants according to their grade levels

<table>
<thead>
<tr>
<th>Grade</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>First-grade</td>
<td>35</td>
<td>21</td>
</tr>
<tr>
<td>Second-grade</td>
<td>39</td>
<td>23.4</td>
</tr>
<tr>
<td>Third-grade</td>
<td>50</td>
<td>29.9</td>
</tr>
<tr>
<td>Fourth-grade</td>
<td>43</td>
<td>25.7</td>
</tr>
</tbody>
</table>

When Table 2 is examined, it is seen that 21% of the participants are first-grade, 23.4% are second-grade, 29.9% are third-grade, and 25.7% are fourth-grade.

Table 3. Distribution of the participants according to their academic success averages

<table>
<thead>
<tr>
<th>GPA</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-2.5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2.51-3.00</td>
<td>60</td>
<td>35.9</td>
</tr>
<tr>
<td>3.01-4.00</td>
<td>107</td>
<td>64.1</td>
</tr>
</tbody>
</table>

When Table 3 is examined, none of the participants in the research has a grade point average between 0-2.5. It is seen that 35.9% of the participants have a grade point average between 2.51-3.00 and 64.1% between 3.01-4.0.

Data Collection Tools

The "Digital Writing Attitudes Scale" developed by Kırmızı, Kapıkıran, and Akkaya (2021) is a 5-point Likert type. The scale consists of 25 items, which requires a Likert-type scoring between 1 and 5. The sub-dimensions of the scale are convenience, motivation and effect. The convenience sub-dimension consists of 13 items. The motivation sub-dimension consists of 6 items, and the effect sub-dimension consists of 6 items. The minimum score for the scale is 25, and the maximum score is 125 (Kırmızı, Kapıkıran and Akkaya, 2021). If the resulting score is high, it is seen that pre-service teachers have positive attitudes towards the digital writing process; if it is low, comments can be made that they have negative attitudes (Kırmızı, Kapıkıran, and Akkaya, 2021).

The "Digital Reading Tendency Scale" developed by Bulut and Karasakaloğlu (2018) is in the 5-point Likert type. The scale, which consists of 12 items, requires a Likert-type scoring between 1 to 5. The scale has only one dimension. The minimum score for the scale is 12, and the maximum score is 60. The increase in the scores obtained from the scale indicates that the individual's tendency to digital reading is high (Bulut and Karasakaloğlu, 2021).

A reliability study was conducted within the scope of the research. The Cronbach-Alpha internal consistency coefficient calculated for the "Digital Reading Tendency Scale" was .702, and the Cronbach-Alpha internal consistency coefficient for the whole "Digital Writing Attitudes Scale" was calculated as .878. The Cronbach-Alpha internal consistency coefficient for the "Digital Writing Attitudes Scale" sub-dimensions was calculated as .894 in the Convenience sub-dimension, .933 for the Motivation sub-dimension, and .788 in the Effect sub-dimension. Accordingly, it can be concluded that the scales are reliable.

Data Analysis

SPSS package program, one of the quantitative data analysis programs, was used in the research. Standard deviation (Sd) and arithmetic mean (X̄) values were used in the study. According to George and Mallery (2010), the value ranges providing normality are between (+2.0) – (-2.0). The skewness and kurtosis values obtained from this study ranged from -2 to +2. Since the skewness and
kurtosis values showed normal distribution, t-test, one-way ANOVA analysis and Pearson correlation analyses were used.

**FINDINGS**

Analysis results of pre-service Turkish teachers’ digital writing attitudes and digital reading tendencies are given in table 4.

**Table 4. Analysis results on digital writing attitudes and digital reading tendencies of pre-service Turkish teacher**

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Min</th>
<th>Max</th>
<th>(\bar{x})</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Writing Attitude</td>
<td>167</td>
<td>60</td>
<td>125</td>
<td>100.71</td>
<td>12.603</td>
</tr>
<tr>
<td>Digital Reading Tendencies</td>
<td>167</td>
<td>27</td>
<td>60</td>
<td>42.01</td>
<td>5.917</td>
</tr>
</tbody>
</table>

When table 4 is examined, it can be seen that the average scores of the pre-service teachers from the digital writing attitudes scale are at a positive level with a score of \(\bar{x}=100.71\) out of 125. Also, they seem to respond as "I agree". It is seen that the average scores they received from the Digital Reading Tendency scale are at a moderate level with \(\bar{x}=42.01\) out of 60 points.

**Table 5. Kurtosis and skewness values of the scales**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convenience</td>
<td>-.124</td>
<td>1.608</td>
</tr>
<tr>
<td>Motivation</td>
<td>-.104</td>
<td>-.949</td>
</tr>
<tr>
<td>Effect</td>
<td>-.271</td>
<td>.441</td>
</tr>
<tr>
<td>Digital Writing Attitudes (Total)</td>
<td>-.281</td>
<td>.149</td>
</tr>
<tr>
<td>Digital Reading Tendencies (Total)</td>
<td>-.153</td>
<td>.151</td>
</tr>
</tbody>
</table>

When table 5 is examined, it can be seen that the entire Digital Writing Attitudes scale (Skewness: -.281, Kurtosis: .149) took values between -2 and +2. In addition to the total scale scores, sub-dimensions of the digital writing attitudes scale convenience (Skewness: -.124, Kurtosis: 1.608), motivation (Skewness: -.104, Kurtosis: -.949), and the effect (Skewness: -.271, Kurtosis: .441) took values between -2 and +2. Also, table 5 shows that the entire Digital Reading Tendency scale (Skewness: -.153, Kurtosis: .151) took values between -2 and +2. According to George and Mallery (2010), the value ranges providing normality are between (+2.0) – (-2.0). In this context, the data obtained from the scales and sub-dimensions range from -2 to +2. According to these results, parametric tests will be applied for the analyses in this study. The analysis of the digital writing attitudes of pre-service Turkish teachers according to the gender variable is given in table 6.

**Table 6. Analysis results of pre-service Turkish levels of digital writing attitudes according to gender variable**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Gender</th>
<th>N</th>
<th>(\bar{x})</th>
<th>Sd</th>
<th>(t)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convenience</td>
<td>Female</td>
<td>115</td>
<td>58.89</td>
<td>5.81</td>
<td>1.95</td>
<td>.05</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>52</td>
<td>56.33</td>
<td>8.59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motivation</td>
<td>Female</td>
<td>115</td>
<td>19.78</td>
<td>6.45</td>
<td>.29</td>
<td>.77</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>52</td>
<td>19.46</td>
<td>7.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effect</td>
<td>Female</td>
<td>115</td>
<td>23.31</td>
<td>2.63</td>
<td>2.07</td>
<td>.04*</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>52</td>
<td>22.12</td>
<td>3.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>Female</td>
<td>115</td>
<td>101.98</td>
<td>11.05</td>
<td>1.73</td>
<td>.08</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>52</td>
<td>97.90</td>
<td>15.24</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As seen in table 6, digital writing attitudes of Turkish teacher candidates do not show a significant difference in terms of gender variable when the total scale score is considered (\(t_{(165)} = 1.73\),
p > .05). When the sub-dimensions of the scale are examined, there is a significant difference found in favour of female teacher candidates in terms of gender variable in the effect sub-dimension ($t_{(165)} = 2.07$, $p < .05$). However, it does not show a significant difference in terms of gender variable in the sub-dimensions of convenience ($t_{(165)} = 1.95$, $p > .05$) and motivation ($t_{(165)} = .29$, $p > .05$). According to these results, it can be said that female pre-service teachers’ perceptions of digital writing attitudes in the effect sub-dimension ($\bar{X} = 23.31$) are higher than male pre-service teachers ($\bar{X} = 22.12$).

The analysis of the digital reading tendencies of Turkish teacher candidates according to the gender variable is given in Table 7.

**Table 7. The results of the analysis of the digital reading tendencies of Turkish teacher candidates according to the gender variable**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Gender</th>
<th>N</th>
<th>$\bar{X}$</th>
<th>Sd</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>Female</td>
<td>115</td>
<td>42.03</td>
<td>5.7</td>
<td>.07</td>
<td>.94</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>52</td>
<td>41.96</td>
<td>6.35</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As seen in table 7, the digital reading tendencies of Turkish teacher candidates do not show a significant difference in terms of gender when the total scale score is examined ($t_{(165)} = .07$, $p > .05$).

In order to determine whether the sub-dimensions constituting the perception level of Turkish teacher candidates towards the digital writing attitudes differ from the variable of academic achievement, the independent groups’ t-test was applied, and the results are shown in Table 8.

**Table 8. Analysis results of Turkish teacher candidates’ digital writing attitudes levels according to academic success variable**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Academic Achievement</th>
<th>N</th>
<th>$\bar{X}$</th>
<th>Sd</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convenience</td>
<td>2.51-3.00</td>
<td>60</td>
<td>58.27</td>
<td>7.41</td>
<td>.248</td>
<td>.80</td>
</tr>
<tr>
<td></td>
<td>3.01-4.00</td>
<td>107</td>
<td>57.99</td>
<td>6.59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motivation</td>
<td>2.51-3.00</td>
<td>60</td>
<td>18.71</td>
<td>6.66</td>
<td>2.57</td>
<td>.01*</td>
</tr>
<tr>
<td></td>
<td>3.01-4.00</td>
<td>107</td>
<td>21.42</td>
<td>6.41</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effect</td>
<td>2.51-3.00</td>
<td>60</td>
<td>22.48</td>
<td>3.20</td>
<td>-1.44</td>
<td>.15</td>
</tr>
<tr>
<td></td>
<td>3.01-4.00</td>
<td>107</td>
<td>23.20</td>
<td>2.98</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2.51-3.00</td>
<td>60</td>
<td>102.17</td>
<td>14.00</td>
<td>1.06</td>
<td>.29</td>
</tr>
<tr>
<td></td>
<td>3.01-4.00</td>
<td>107</td>
<td>99.90</td>
<td>11.73</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$p^* < .05$

It can be seen in table 8, digital writing attitudes of pre-service Turkish teachers’ do not show a significant difference in terms of academic achievement when the total scale score is considered ($t_{(165)} = 1.06$, $p > .05$). When the sub-dimensions of the scale are examined, the motivation sub-dimension ($t_{(165)} = 2.57$, $p < .05$) shows a significant difference in favour of pre-service Turkish teachers’ whose academic achievement level is between 3.01-4.00 in terms of academic achievement. In other words, the pre-service teachers’ perceptions whose academic achievement level is between 3.01-4.00 in the motivation sub-dimension ($\bar{X} = 21.42$) are at a higher level than the pre-service teachers whose academic achievement level is between 2.51-3.00 ($\bar{X} = 18.71$). However, it does not show a significant difference in terms of academic achievement in the sub-dimensions of convenience ($t_{(165)} = .248$, $p > .05$) and effect ($t_{(165)} = -1.44$, $p > .05$).

In order to determine whether the dimensions and scale that make up the perceptions of Turkish teacher candidates’ digital writing attitudes differ according to the gender variable, independent groups t-test was applied, and the results are shown in Table 9.
As seen in Table 9, digital reading tendencies of Turkish teacher candidates show a significant difference in favour of pre-service Turkish teachers whose academic achievement level is between 2.51-3.00 in terms of academic achievement variable when the total scale score is examined. \( t_{(165)} = 2.55, p > .05 \). In other words, the perception of digital reading tendencies of pre-service teachers with an academic achievement level between 3.01-4.00 \( (\bar{X} = 43.55) \) is higher than that of pre-service teachers with an academic achievement level between 2.51-3.00 \( (\bar{X} = 41.15) \).

In order to determine the digital writing attitude scale and its sub-dimensions in terms of grade-level variable, a One-way ANOVA analysis was applied to determine whether the perception levels of Turkish teacher candidates towards digital writing attitudes differ. One-way ANOVA analysis results according to the grade level variable of digital writing attitudes of Turkish teacher candidates are given in Table 10.

**Table 10. One-way ANOVA analysis results of Turkish teacher candidates’ digital writing attitudes according to grade level variable**

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>Sum of Squares</th>
<th>sd</th>
<th>Mean Square</th>
<th>F</th>
<th>p</th>
<th>Significant Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convenience</td>
<td>Between Groups</td>
<td>509.210</td>
<td>3</td>
<td>169.737</td>
<td>3.768</td>
<td>.012*</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>7342.442</td>
<td>163</td>
<td>45.046</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>7851.653</td>
<td>166</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motivation</td>
<td>Between Groups</td>
<td>609.807</td>
<td>3</td>
<td>203.269</td>
<td>4.976</td>
<td>.002*</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>6658.373</td>
<td>163</td>
<td>40.849</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>7268.180</td>
<td>166</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effect</td>
<td>Between Groups</td>
<td>49.100</td>
<td>3</td>
<td>16.367</td>
<td>1.755</td>
<td>.158</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>1520.301</td>
<td>163</td>
<td>9.327</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1569.401</td>
<td>166</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>Between Groups</td>
<td>1549.392</td>
<td>3</td>
<td>516.464</td>
<td>3.392</td>
<td>.019*</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>24816.812</td>
<td>163</td>
<td>152.250</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>26366.204</td>
<td>166</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\( p*<.05 \), A: First-grade, B: Second-grade, C: Third-grade, D: Fourth-grade

According to table 10, digital writing attitudes of pre-service Turkish teachers show a significant difference according to the grade level variable \( F_{(3,163)} = 3.392; p<.05 \). Tukey test was conducted in order to reveal among which groups this difference originated. According to the Tukey test, digital writing attitudes of first-grade Turkish teacher candidates \( (\bar{X}=104.23) \) were determined according to second-grade Turkish teacher candidates \( (\bar{X}=103.82) \), third-grade Turkish teacher candidates \( (\bar{X}=99.04) \), and fourth-grade Turkish teacher candidates \( (\bar{X}=96.98) \) shows a significant difference in favour of first-grade Turkish teacher candidates.

It shows a significant difference in the convenience sub-dimension according to the grade level variable \( F_{(3,163)} = 3.768; p<.05 \). Tukey test was conducted in order to reveal among which groups this difference originated. According to the Tukey test, digital writing attitudes of first-grade pre-service Turkish teachers show a significant difference in favour of first-grade pre-service Turkish teachers in the sub-dimension of convenience \( (\bar{X}=59.34) \) compared to fourth-grade pre-service Turkish teachers \( (\bar{X}=58.09) \). In addition to the convenience sub-dimension, it also shows a significant
difference in the motivation sub-dimension according to the grade level variable \[F(3-163)=4.976; p <.05\]. According to the Tukey test results, digital writing attitudes of first-grade pre-service Turkish teachers in the motivation sub-dimension (\(\bar{x}=21.89\)) compared to third-grade pre-service Turkish teachers (\(\bar{x}=18.00\)) and fourth-grade pre-service Turkish teachers (\(\bar{x}=17.95\)), there is a significant difference in favour of first-grade pre-service Turkish teachers. However, it does not show a significant difference in the effect sub-dimension according to the grade level variable \[F(3-163)=1.755, p>.05\].

One-way ANOVA analysis was applied to determine whether the digital reading tendencies of Turkish teacher candidates differ when considering the total scale score in terms of the class variable. The results of a One-way ANOVA analysis of the digital reading tendencies of Turkish teacher candidates according to the class variable are given in Table 11.

Table 11. One-way ANOVA analysis results of Turkish teacher candidates' digital reading tendencies according to the class variable

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Squares</th>
<th>F</th>
<th>p</th>
<th>Significant Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>78,970</td>
<td>3</td>
<td>26,323</td>
<td>.748</td>
<td>.525</td>
<td>-</td>
</tr>
<tr>
<td>Within Groups</td>
<td>5733,006</td>
<td>163</td>
<td>35,172</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>5811,976</td>
<td>166</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(p>.05\),

According to Table 11, there is no significant difference between the digital reading tendencies of pre-service Turkish teachers according to the class variable \[F(3-163)= .748, p>.05\]. On the other hand, the digital reading tendencies of the first-grade pre-service Turkish teachers (\(\bar{x}= 43.31\)) are higher than the second-grade (\(\bar{x}= 41.87\)) and third-grade (\(\bar{x}=41.70\)) pre-service Turkish teachers. In addition, fourth-grade pre-service Turkish teachers (\(\bar{x}= 41.44\)) have the lowest digital reading tendencies.

A One-way ANOVA analysis was applied to determine whether the digital reading tendencies of pre-service Turkish teachers differ when considering the whole scale in terms of the class variable. The results of a One-way ANOVA analysis of the digital writing attitudes of pre-service Turkish teachers according to the class variable are given in Table 12.

Table 12. Pearson Correlation analysis on the relationship between Turkish teacher candidates' digital writing attitudes and digital reading tendencies

<table>
<thead>
<tr>
<th></th>
<th>Writing</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Writing</td>
<td>Pearson Correlation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>167</td>
</tr>
<tr>
<td>Reading</td>
<td>Pearson Correlation</td>
<td>.524**</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.000*</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>167</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level (2-tailed)
*p<.01

When Table 12 is examined, there is a moderate, positive and significant relationship between the digital writing attitudes of pre-service Turkish teachers and their digital reading tendencies \([r=0.524, p<.01]\). Accordingly, it can be said that as the pre-service teachers' writing increases, their
reading also increases. According to the coefficient of determination \( r^2 = .27 \), it can be said that 27% of the total variance in the writing scale is due to the reading scale.

**DISCUSSION AND RESULTS**

This study determined the relationship between Turkish teacher candidates' digital writing attitudes and digital reading tendencies. The research consists of 167 pre-service Turkish teachers who were studying at Çanakkale Onsekiz Mart University. 68.9% of the participants were female, and 31.1% were male teacher candidates. 21% of the participants were first grade, 23.4% were second grade, 29.9% were third grade, and 25.7% were fourth-grade students. It was determined that none of the participants had a grade point average below 2.5 out of 4.0. It has been determined that 35.9% of the participants had academic achievement scores between 2.51-3.00 and 64.1% between 3.01-4.0.

It has been observed that there is a moderate, positive and significant relationship between the digital writing attitudes of Turkish education teacher candidates and their digital reading tendencies. The moderate level of Correlation indicates that there is a relationship between them. According to this result, it can be said that a change in one affects the other at a moderate level. In other words, it can be said that pre-service teachers’ digital writing attitudes and digital reading tendencies affect each other positively.

The digital reading tendencies of Turkish teacher candidates were at a moderate level. Some studies in the literature support this finding (Bulut and Karasakaloğlu, 2019; Maden, Banaz and Maden, 2018; Saracaloğlu, Karasakaloğlu and Aslantürk, 2010). It was seen that the pre-service teachers who participated in the research conducted by Geçgel, Kana, Öztürk, and Akkaş (2020) preferred printed materials more than digital materials. According to this research, it can be said that pre-service teachers do not prefer to read wide and large texts from digital media. Pre-service teachers prefer digital reading if the texts contain short and specific information (Larson, 2012). In their study, Kırmızı, Kapıkıran, and Akkaya (2021) concluded that pre-service teachers prefer reading from printed sources more than digital materials. According to Dağıtaş's (2013) study, reading from the screen tires the eyes and mind more than reading from the printed media.

The digital writing attitudes of the Turkish teacher candidates were at a positive level, and they responded as "I agree". Some of the studies in the literature support this result. Maden, Banaz and Maden (2018) found that pre-service Turkish teachers’ digital writing habits were above average. In another study, Yamaç, Öztürk, and Mutlu (2020) found that students' writing skills in digital environments were higher than students who write using pen and paper. Aktaş and Akyol (2020) found that digital environments improve students' writing skills in their experimental research. Aytan, Güneş, and Çalıcı (2018) concluded that pre-service Turkish teachers were successful in their screenwriting skills.

Another finding in the study is that pre-service Turkish teachers’ digital writing attitudes did not significantly differ in terms of gender variable in the total scale score and the sub-dimensions of convenience and motivation. According to Bağcı's (2010) study, pre-service teachers’ composition (written expression skill) scores did not show a significant difference according to their gender. However, it was understood that there was a significant difference favouring female pre-service teachers regarding gender variable in the effect sub-dimension. There is a significant difference in favour of female pre-service teachers between female pre-service teachers average text creation levels and the average male pre-service teachers text creation levels. In Dumanlı's (2014) study, it was determined that female pre-service Turkish teachers consider themselves more competent in terms of written expression skills.

The digital reading tendencies of pre-service Turkish teachers do not show a significant difference in terms of gender variable when the total scale score is considered. In other words, the gender variable is not an influential variable on the digital reading tendencies of pre-service Turkish
teachers. This result shows similarities with Şahin's (2019) research on reading motivation. In some studies in the literature, it was determined that female students read more books than male students (Arslan, Çelik and Çelik, 2009; Gönen, Çelebi and Işıtan, 2004; Başaran and Ateş, 2009; Korkmaz, 2007; Özbay, Bağcı and Uyar, 2008; Yalınkılıç, 2007). However, these studies are about traditional reading trends, not digital reading.

The digital writing attitudes of pre-service Turkish teachers do not show a significant difference in terms of academic achievement for the total scale score and the convenience and effect sub-dimensions. However, in the motivation sub-dimension, it shows a significant difference favouring the pre-service teachers whose academic success level is between 3.01-4.00 according to the academic achievement variable. According to these findings, it was determined that pre-service teachers with high academic success enjoyed taking notes in the digital environment more, they felt the satisfaction of writing more, they felt more fluent and enjoyed while writing.

When the digital reading tendencies of pre-service Turkish teachers are taken into account as a whole, in terms of the academic achievement variable, the digital reading tendencies perceptions of the pre-service Turkish teachers whose academic achievement level is between 3.01-4.00 are higher than those of the pre-service Turkish teachers whose academic achievement level is between 2.51-3.00. According to these findings, it was determined that the pre-service Turkish teachers’ digital reading tendencies were high if their academic achievement level was also higher than the contrary group. It is understood that the pre-service teachers with high academic success variable may prefer the sources in the digital environment more, prefer to use the internet sources, and prefer to follow the news sites in the social media such as Twitter et al., to get instant information.

The digital writing attitudes of pre-service Turkish teachers show a significant difference according to the grade level variable. The digital writing attitudes of the first-grade pre-service Turkish teachers show a significant difference in favour of the first-grade pre-service Turkish teachers compared to the second-grade, third-grade and fourth-grade pre-service Turkish teachers. In the convenience sub-dimension, the digital writing attitudes of the first-grade pre-service Turkish teachers according to the grade level variable showed a significant difference in favour of the first-grade pre-service Turkish teachers compared to the fourth-grade pre-service Turkish teachers. According to the grade level variable in the motivation sub-dimension, the digital writing attitudes of the first-grade pre-service Turkish teachers show a significant difference in favour of the first-grade pre-service Turkish teachers compared to the third and fourth-grade pre-service Turkish teachers. However, it does not show a significant difference in the effect sub-dimension according to the class level variable. According to these findings, as the grade level increases, it is understood that the digital writing attitudes are at a lower level. It can be said that pre-service teachers in low-level classes are more tending to digital writing.

According to the class variable, the digital reading tendencies of pre-service Turkish teachers do not show a significant difference. In some studies in the literature, it can be seen that the class factor related to reading skill was not an influential variable on pre-service Turkish teachers (Özbay, Bağcı, and Uyar, 2008; Şahin, 2019). In Şahin's (2019) study, it was seen that lower grades pre-service Turkish teachers had higher reading motivations than those studying in upper grades.

According to the class variable, pre-service Turkish teachers digital writing attitudes show a significant difference in favour of the lower classes. In the convenience sub-dimension, the digital writing attitudes of the first-grade pre-service Turkish teachers show a significant difference in favour of the first-grade pre-service Turkish teachers compared to the fourth-grade. Besides that, the motivation sub-dimension of the digital writing attitudes of the first-grade pre-service Turkish teachers show a significant difference in favour of the first-grade compared to the fourth-grade pre-service Turkish teachers. However, it does not show a significant difference in the effect sub-dimension according to the class level variable. According to the study results, it can be said that the class variable has no effect on the pleasure of touching the paper and the concern that digital tools emit
radiation. In addition, according to the answers given by the pre-service Turkish teachers to the scale items, it was found that the class variable did not affect health problems as digital writing would cause eye diseases and tired the eyes. Besides that, it can be said that first-year pre-service teachers have a higher tendency to digital writing tools and digital writing attitudes than fourth-grade pre-service teachers.

We are in an era where the concept of digital citizenship is accepted, where official business and transactions are done electronically without the need to go to institutions in person (Arcagök, 2020). Evaluations have been made from the past to the present to meet the changing needs of society and language learning due to technological developments (Baçi and Temizyürek, 2015; Güneş, 2016). In this period, Turkish teaching programs were also tried to catch up with the future and update it (Güzel and Karadağ, 2013, Özbay and Özdemir, 2014). Digital reading and digital writing issues have started to take an important place in our lives. The ability to participate, write, edit or read content in digital and especially social media environments; affects the behaviour and attitudes of users (İşlek, 2012). In digital writing and digital reading, causes and effects are examined, and research is needed to focus on social media.

In future, it can be ensured that the digital writing attitudes of Turkish teachers working in schools can be investigated, and necessary in-service training can be provided according to the results. Digital writing attitudes and digital reading tendencies can also be investigated in-depth qualitatively. The advantages and disadvantages of reading and writing on digital devices can be questionable. In order to provide digital transformation and dispositions, the positive and negative aspects of reading and writing in digital tools can be thoroughly researched, and improvements can be made by reviewing the existing tools.

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The Views of Pre-Service Science Teachers on Recycling

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Abstract

This study aims to determine the views of pre-service science teachers on recycling. The current study was carried out with semi-structured interview questions applied to 130 pre-service teachers studying in the Department of Mathematics and Science Education at a state university in the spring term of the 2018-2019 academic year. Due to the time and application limitations, the purposeful sample was chosen. Since this group will teach secondary school students in the future and recycling will be an important issue in the future as well as today, it is necessary to work specifically with this group so that teachers can teach this subject to their students. By taking their opinions, the deficiencies or negativities in the university education will be determined, thus an opportunity will be obtained to take steps towards overcoming these deficiencies. In the study, the case study method, a qualitative research design, was preferred and Recycling Interview Questions that was developed by the researcher was used as a data collection tool, and a content analysis was made. In the case study, a holistic single-case design was used. There are seven codes regarding the theme of “Separating the Wastes” in the 1st question about recycling for the pre-service science teachers. The highest frequency was given for “Reducing Environmental Pollution”. There are six codes for the theme of the contribution of recycling to the country in the 2nd question. The highest frequency was given for “It makes a contribution to the country”. In the 3rd question, there are six codes regarding the themes of recycling at universities. “Adequate education is not given” had the highest frequency. There are six codes for the theme of recycling at secondary schools in the 4th question. The highest frequency was given for “Only theoretical information is given”. There are seven codes for the theme of the zero waste project in the 5th question. “It is an efficient work” had the highest frequency. The pre-service teachers studying in the Department of Science Education are given practical education regarding recycling, separation of wastes and Zero Waste Project.

Keywords: Recycling, Separating the Wastes, Zero Waste Project, Pre-service Science Teachers

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INTRODUCTION

Protection of natural resources, biodiversity and protection of endangered species, reduction of carbon dioxide concentration in the atmosphere as a result of the use of non-renewable energy sources and motor vehicles, widespread use of renewable energy sources, reproduction of green areas, prevention of environmental pollution (water, soil and air pollution), ensuring the reuse of wastes by recycling and reducing the use of raw materials, preventing the climate change which is the most significant impact of global warming by taking serious measures, supporting environmental-oriented activities by increasing the number of environmental organizations are all regarded as some practices necessary to prevent environmental destruction and to ensure the continuity of the environment (Dinc, 2015; UNESCO, 2006).

The fact that water, soil and air pollution has reached harmful levels poses a handicap for environmental sustainability. These sources, which are polluted for many reasons such as wastes and industrial companies, also threaten the health of living beings. Recycling policies should be implemented in order to end the environmental pollution caused by wastes. Regaining wastes with recycling will not only reduce resource use for raw materials but will also prevent many problems caused by environmental pollution (Korkmaz, 2015).

The concept of “ecological footprint” considers the relation between nature and man through a different perspective and determines the quantity of the pressure upon natural resources and from which factors its results. Ecological footprint determines the fertile surface on the earth where the sources needed by individuals having a life quality and consumption habits and the wastes are turned out to be harmless (Wackernagel & Rees, 1996) and to produce energy by reabsorbing carbon dioxide (Wilson & Anielski, 2005). Making wastes harmless is of importance for sustainable development for indirect recycling and zero waste processes and for ecological footprint. Recycling is an effort of a human being with his own wastes. It slows down the consumption speed of our natural resources and protects nature. Separation of our wastes to regain them needs collecting the same types in the same place. What is regarded as a waste when thrown together becomes a raw material out of which we can reproduce something when collected by separation. What kind of things should we pay attention to? Even though recycling increases reusing things and prevents sending reusable materials to nature once again, one of the most significant things is actually the fact that individuals pay attention to a lifestyle that does not require recycling as much as possible. Such that, the cost required for the recycling of waste materials could sometimes exceed the cost needed for the production of that material. Natural resources are not our belongings. We make a contribution to the ecological footprint by using them carefully and handing them down to the next generations. The ecological footprint is indicated to be an effective educational tool as it is used by students to understand its environmental effects scientifically by using their problem solving and critical thinking skills (Abellera, 2005).

Separating the materials that are suitable for recycling out of the ungrouped wastes is thought to be one of the biggest problems in the recycling of wastes. In the developed and environmentally conscious countries, awareness-raising activities are carried out for citizens depending on this idea to group solid wastes and gain them for recycling more rapidly. In this sense, in many countries, multi-bin trash cans and garbage containers are used for grouping garbage, which will contribute to the separation of the garbage from the houses, schools, workplaces, neighbourhoods, etc., without sending it to solid waste disposal facilities. The wastes to be recycled should be clean, which is very important for the recycling process. Therefore, the disposal and preparation of the garbage in the place where it was first formed for recycling makes it more convenient for the subsequent transformation processes (Curran & Williams, 2012).

One of the most important principles of Turkey’s waste management strategy is the “recycling of wastes”. In all the legal regulations, especially in the Environment Law, the reuse of wastes, regaining of them as a material and energy has been handled as one of the priority management principles, recycling activities have been encouraged, criteria for improving the technical and
administrative qualifications of the recycling facilities have been established and the facilities having these criteria have been licensed to contribute to both the economy and the environment (Bek, 2019). It refers to the collection, transportation, regaining, disposal, maintenance of disposal sites, supervision, inspection and monitoring of such activities (Karaca, 2008; T. C. Resmi Gazete [Turkish Official Gazette], 2015). Accordingly, the waste management hierarchy is shown in Figure 1.

Figure 1. Waste management hierarchy (Karaca, 2008)

Rapid economic growth, urbanization, increase in population and rising of the welfare level in Turkey, the increase in the waste types and quantities revealed the requirements of an integrated approach comprising all the wastes rather than setting up a separate management system for each type of waste (Cremiato, Mastellone, Tagliaferri, Zaccariello & Lettieri, 2018). When the recycling and waste management practices in Turkey are analyzed, it is likely to see that there is a transition to Zero Waste Project. It is aimed to prevent wastes, revise the reasons for waste formation, and prevent and/or reduce waste formation with this project (Zero Waste Regulation Draft, 2018).

Waste management is described as the prevention of waste formation, reduction in the source, reuse, separation according to the quality and type, accumulation, collection, temporary storage, transportation, intermediate storage, recycling, regaining including the regaining of the energy, disposal, observation after the disposal, control and supervision of the activities. Zero Waste, on the other hand, is defined as the aim of preventing wastes, reviewing the causes of waste generation and preventing and/or decreasing waste generation, preferring more sustainable products, ensuring efficient use of resources, and collecting and recovering the waste separately in their sources when there are wastes. Zero Waste Information System is defined as the online registration system prepared by the Ministry in order to record the places implementing the zero waste management system, to provide the observation of the wastes collected in this scope and to give a zero waste certificate to the places that establish the zero waste management system (Zero Waste Regulation Draft, 2018).

The consciousness of sustainable development was given a place in the general objectives of the Science curriculum prepared by T. R. the Ministry of National Education (MoNE, 2018). In the related text, it is emphasized that one of the aims of the Science course is to educate individuals who have a sense of sustainable development with the expressions of “to recognize the interaction between individual, environment and society, to have a sustainable development consciousness belonging to society, economy and natural resources.” With the philosophy of the curriculum, it is likely to see that it is aimed to raise individuals with a responsibility, respectful to the rights and freedom of the person, helpful, having ethical values and who are beneficial to the society and the planet where they live. Upon the detailed examination of the program, it is likely to see those achievements related to many
subjects such as preservation of the natural environment in all grade levels where the Science course is taught, saving resource use, the importance and encouragement of recycling, the importance of biodiversity, energy sources, delivery to the people in need with reuse of the goods that can be used, the fact that the ozone layer gets thinner, global warming, environmental problems and sustainable living have all been determined. It is clearly seen that it is aimed to educate individuals who have exhibited behaviours in accordance with the principles of sustainable development as a way of life through the acquisition of these gains in the curriculum (MoNE, 2018). In addition, it is aimed that students comprehend the importance of the sustainable and efficient use of natural resources in the curriculum of the course “Environmental Education”, which is one of the elective courses at secondary education (MoNE, 2015).

The current study was carried out to determine the view of teachers on recycling in order that raw material sources could be used by future generations as it is thought that each individual has responsibilities in the process of recycling waste. It is important to determine the current opinions of pre-service teachers on recycling in terms of understanding their competencies in recycling and organizing educational activities in this context. As a matter of fact, pre-service science teachers, who are the future teachers, have a role as role models in ensuring environmental sustainability by raising students who are aware of reduce, reuse and recycle, known as 3R principles. It should be taken into consideration that students also transfer the concept of recycling and practices learned from their teachers to their own environment and families and has an important role in creating a widespread effect.

The purpose of this study is to determine the views of the pre-service science teachers over recycling. The general problem statement of this study can be expressed as “What are the opinions of the pre-service science teachers about the subject of recycling?” The problem situation was determined by paying attention to the general and specific criteria that should be taken into consideration in the selection of the problem. It is considered that it is important as it is useful for pre-service teachers to determine their views over the issue of recycling. In line with this general objective, the following questions were tried to be answered:

1. Why is it so important to separate wastes?
2. What is the contribution of efficient recycling to the country (economy, etc.)?
3. Is there adequate recycling education at universities in our country?
4. Do you think there is adequate information about recycling in the Science curriculum taught at secondary schools?
5. Do you think that studies such as the Zero Waste Project carried out in our country have a waste prevention approach that includes adequate recycling of waste?

METHOD

Research Model

In this study, a case study method was used at a qualitative dimension. The case study in qualitative research is related to the intensive study of an event (Glesne, 2011). The case study is a method that investigates social phenomena by conducting a detailed analysis of a single case and associating a single event with various phenomena. In addition, it allows examining information in depth that other methods can overlook (Punch, 2014). Holistic single case study design: There is only one unit of analysis (an individual, an institution, a program, a school, etc.) in a single case study design (Yıldırım & Simsek, 2013).
In this study, the opinions of pre-service science teachers over the subject of recycling were analyzed in detail. The interview form developed by the researcher was used as a data collection tool and content analysis was performed. The questions were developed by the researcher upon the literature review. In the study, the answers obtained from the interview form were added and interpretations were made based on the results.

**Participants**

The research was carried out with a total of 130 pre-service teachers who take the course of Environmental Education course, studying in the Department of Mathematics and Science Education at a faculty of education at a public university in the spring term of 2018-2019 academic year. Homogeneous sampling means that the research consists of an analogous sub-group or situation present in the universe depending on the problem and the purpose of the study and that the study is carried out here (Buyukozturk, Kilic Cakmak, Akgun, Karadeniz, & Demirel, 2018). In the current study, homogeneous sampling was used because the study comprised of pre-service teachers who were chosen from the population, attending to the same practice school and having similar characteristics. Pre-service teachers were coded as PT\(_1\), PT\(_2\), PT\(_3\) ... PT\(_{130}\). In addition, demographic data regarding the gender of pre-service teachers are given in Table 1.

<table>
<thead>
<tr>
<th>Gender</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>113</td>
<td>86.9</td>
</tr>
<tr>
<td>Male</td>
<td>17</td>
<td>13.1</td>
</tr>
</tbody>
</table>

Depending on the numbers of the pre-service teachers registered at the central system student affairs office at a state university, Faculty of Education for the academic year of 2019-2020, it is likely to say that the rate of the pre-service science teachers is females at the rate of almost 87%.

**Data Collection Tool**

In the case study, the interview questions developed by the researchers were used as the main data collection tool. Recycling Interview Questions (RIQ) was prepared by the researcher by examining the related studies about the issue in Turkey after a comprehensive review of the literature (Cremiato, et al, 2018; Bek, 2019), and by depending on the opinions of 4 field experts. In order to reach the goals determined in this research, the interview questions developed for the pre-service teachers by the researcher were used as data collection tools. Interview questions are often asked in an interview or in writing. The interview is the conversation conducted to reveal the experiences, thoughts and beliefs of individuals about the searched subject and to reveal the important reasons underlying them (Yildirim & Simsek, 2013). When the interview technique is compared with other data collection methods, it is stated that the pre-service teachers’ response rate is almost complete since he/she personally participates in the data collection process. It is because the researcher can ask additional questions for more in-depth answers, repeat the question in case of misunderstanding, or ask the question in a different way in this process (White & Gunstone, 1992). The questions in the interview form were developed in line with the opinion of 4 experts in the field and the scope validity was ensured. Each interview or meeting lasted for 10-20 minutes. During the interviews, the opinions of the pre-service teachers were written on the interview form paper with their permission.

**Data Analysis**

Content analysis was performed in data analysis. Content analysis is usually a method used in the analysis of written and visual data. In the content analysis, the researcher first develops categories related to the research topic. The words, sentences or visuals that fall into these categories are counted. In the development stage of the category, it is necessary to pay attention to develop appropriate categories for other researchers who are planning to do similar research on the same text so that they
can get the same results (Ozdemir, 2010). The main purpose of content analysis is to reach the concepts and relations that can explain the collected data. In this sense, it is necessary to conceptualize the collected data firstly and to organize these concepts in a logical manner and define the themes that explain the data accordingly. Thus, it is aimed to determine the data obtained by content analysis and to highlight the realities hidden in the data (Yildirim & Simsek, 2013). The themes and codes obtained from the data are included in the findings.

According to Miles and Huberman (1994), definitions become sharper if two researchers encode using the same data set. In this way, it is possible to reach a common vision about what coding means and which piece of data belongs to which code. The main point of this technique is whether encoders use similar codes for the same pieces of data. Disagreements indicate that definitions need to be expanded or corrected. By dividing the number of compromised codes by the total number of compromised and non-compromised codes, the reliability ratio between the encoders can be calculated. It is recommended that this ratio should be close to 80% and even more than 90% depending on the size of the data.

The interview questions obtained in the data were turned into writing without making any changes by the two experts. Later on, the writings were examined separately and it was paid attention to in order not to have any inconsistency. Depending on the expressions of the participants, some codes were formed in line with the purpose of the study. Sub-questions were given themes and coded. In order to provide intercoder reliability, 32 codes were made at common vision. There became a disagreement in 3 codings. With the division of the number of the codes agreed by the total agreed and disagreed code number, the intercoder reliability rate was calculated. Intercoder reliability was found as 91%. It is recommended that this number should be over 90% (Miles & Huberman, 1994).

RESULTS

At the end of the semi-structured interviews, the answers of the pre-service teachers over recycling replied to the interview form and the frequency values of these answers were given in this section. The first question of “The recycle bin appears everywhere. Why is it so important to separate waste? Please explain.” asked the pre-service teachers was processed with the theme of “Separating Wastes”. The answers of the pre-service teachers to this question are given in Table 2.

<table>
<thead>
<tr>
<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reducing Environmental Pollution</td>
</tr>
<tr>
<td>Resource Saving</td>
</tr>
<tr>
<td>Economic Contribution</td>
</tr>
<tr>
<td>Provides Business Easiness</td>
</tr>
<tr>
<td>Ecological Balance</td>
</tr>
<tr>
<td>Efficient Recycling</td>
</tr>
<tr>
<td>Reducing Soil Pollution</td>
</tr>
</tbody>
</table>

Table 2. Opinions of pre-service teachers about separating wastes and the frequencies

As given in Table 2, there are seven different opinions by the pre-service teachers for the 1st question. The most important topics that pre-service teachers focus on regarding “Separating Wastes” are “Reducing Environmental Pollution” in the first place and secondly “Resource Saving”. Besides that, they were followed by “Economic contribution” by twenty-two pre-service teachers, “It provides easiness at business” by eighteen pre-service teachers, “Ecological Balance” by seven pre-service teachers, “Efficient Recycling” by three pre-service teachers and “Reducing Soil Pollution” by two students, respectively. Some of the statements written by the pre-service teachers in the interview form regarding the 1st question are as follows:
**PT₁**: Provides great convenience in the recycling of wastes. Reduces labor.

**PT₇**: Recycling is provided by separating the wastes. If we separate the paper, cutting trees is reduced. We will prevent soil contamination.

**PT₃₁**: It is important to reduce environmental pollution.

**PT₉₉**: It is important to separate the wastes in order to prevent wastes from giving harm to our environment and reuse them by recycling.

**PT₁₂₀**: This method helps to minimize the use of raw materials (resources).

The second question of “What is the contribution of efficient recycling to the country (economy, etc.)? Please, explain.” asked the pre-service teachers was themed as “Contribution to the Country”. The answers of the pre-service teachers to this question are in Table 3.

### Table 3. Opinions of the pre-service teachers about the contributions of recycling to the country and frequencies

<table>
<thead>
<tr>
<th>Theme</th>
<th>Codes</th>
<th>f</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Contributes to the economy</td>
<td>87</td>
</tr>
<tr>
<td></td>
<td>Saves money</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>Reduced raw material requirement</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Protects natural resources</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Reduced damage to the environment</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>It advances development</td>
<td>4</td>
</tr>
</tbody>
</table>

As given in Table 3, there are six different opinions by the pre-service teachers for the 2nd question about recycling. The most important ones that the pre-service teachers focus on regarding “Contribution to the Country” are firstly “Contributes to the economy” and secondly “Save money”. Also, they were followed by “Reduced raw material requirement” by thirty pre-service teachers, “It protects natural resources” by eighteen pre-service teachers, “Reduced damage to the environment” by seventeen pre-service teachers and “It advances development” by four pre-service teachers, respectively. Some of the statements written by the pre-service teachers on the interview form regarding the 2nd question are as follows:

**PT₃₈**: For example, recycling paper is very important for our trees. The cost of paper is reduced. Our natural resources are protected.

**PT₆₄**: Provides resource-saving in the economy. It prevents environmental pollution by preventing the disposal of harmful wastes to the soil by recycling.

**PT₈₀**: Provides resource-saving in the economy. We don’t use resources unnecessarily.

**PT₁₁₆**: Fewer trees are cut (natural resources are preserved). The country’s forest resources are consumed less. The raw material and energy consumed for the production of a glass bottle is reduced to a minimum.

**PT₁₂₀**: The decrease in raw material use affects the economy positively. Recycling reduces the amount of wastes.
The third question of “Is there an adequate level of recycling education in universities in Turkey? Please explain.” asked the pre-service teachers were processed with the theme of “Recycling in universities”. The answers of the pre-service teachers to this question are given in Table 4.

Table 4. Opinions of pre-service teachers about recycling at universities and frequencies

<table>
<thead>
<tr>
<th>Theme</th>
<th>Codes</th>
<th>f</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recycling at Universities</td>
<td>Inadequate education</td>
<td>106</td>
</tr>
<tr>
<td></td>
<td>Adequate education</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>There should be practical education</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>There should be education to create awareness</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Adequate education is given in the Environmental Science course</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>There could be better education</td>
<td>5</td>
</tr>
</tbody>
</table>

As given in Table 4, the pre-service teachers answered the 3rd question about recycling in six different opinions. The most important topics that the pre-service teachers focus on regarding “Recycling at Universities” are firstly “Inadequate education” and secondly “Adequate education”. In addition, these answers were followed respectively by “There should be a practical education” by nine pre-service teachers, “There should be an education to create awareness” by eight pre-service teachers, “An adequate education is given in the course of Environmental Science” by six pre-service teachers and “There could be better education” by five pre-service teachers. Some of the statements written by the pre-service teachers on the interview form regarding the 3rd question are as follows:

**PT38:** Adequate training about recycling is not provided. Moreover, there aren’t even recycling bins at many universities. Each university should have recycling bins.

**PT50:** I don’t think there is adequate education about recycling. Information is given but we are not provided areas that are applicable and recycling areas.

**PT56:** Since we are studying in the Department of Science Teaching, enough importance is given to recycling in our lessons.

**PT113:** I don’t think there is adequate education about recycling. I think it should be given as a lesson in every department and all pre-service teachers should be informed.

**PT121:** Communities related to recycling are established at universities. The number of participants is small, but the participants are able to receive education and perform some activities.

The fourth question of “Do you think there is adequate information about recycling in the Science curriculum taught in secondary schools? Please explain.” asked the pre-service teachers was processed with the theme of “Recycling at secondary schools”. The answers of the pre-service teachers to this question are given in Table 5.
Table 5. Opinions of pre-service teachers about recycling at secondary schools

<table>
<thead>
<tr>
<th>Theme</th>
<th>Codes</th>
<th>f</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recycling at Secondary Schools</td>
<td>Theoretical knowledge is given</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>Adequate education is not given</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>The level of implementation was inadequate</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Adequate education is given</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Teacher education is effective</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Projects should be done.</td>
<td>3</td>
</tr>
</tbody>
</table>

As given in Table 5, the 4th question about recycling was answered by the pre-service teachers in six different opinions. The most important issues that pre-service teachers emphasize about “Recycling at Secondary Schools” are firstly “Theoretical knowledge is given” and secondly “Adequate education is not given”. In addition, they were followed by “The level of implementation was inadequate” by twenty-five pre-service teachers, “Adequate education is given” by twenty pre-service teachers, “Teacher education is effective” by eleven pre-service teachers and “Some projects should be made” by three pre-service teachers, respectively. Some of the statements written by the pre-service teachers on the interview form regarding the 4th question are as follows:

**PT34:** Adequate education about recycling is not provided. These issues should be mentioned much more and environmental awareness studies should be carried out.

**PT38:** I don’t think that enough importance is given to recycling. In my opinion, recycling bins should be given to classes and weekly competitions should be organized in the classroom or at the school.

**PT39:** Textbooks include recycling. But I don’t think people are very focused on this subject. The consciousness of recycling should be given at a young age.

**PT50:** I think there is an adequate level of education for recycling at the secondary level.

**PT126:** Although there is an adequate level of theoretical education for recycling, it lacks applications and projects.

The fifth question of “Do you think that studies such as the Zero Waste Project carried out in our country have a waste prevention approach that includes adequate recycling of waste? Please explain.” asked pre-service teachers was processed with the theme of “Zero Waste Project”. The answers of the pre-service teachers to this question are given in Table 6.

Table 6. Opinions of pre-service teachers about zero waste project and the frequencies

<table>
<thead>
<tr>
<th>Theme</th>
<th>Codes</th>
<th>f</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero Waste Project</td>
<td>Efficient study</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>It isn’t adequate</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>Adequate information isn’t given</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>People are insensitive</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>It was effective at the beginning</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>A theoretical project</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>It’s student-centered</td>
<td>3</td>
</tr>
</tbody>
</table>

As given in Table 6, there are seven different opinions which include the opinions of the pre-service teachers about the 5th question about recycling. The most important issues that the pre-service
teachers focus on the “Zero Waste Project” are firstly “Efficient study” and the second is “It isn’t adequate”. In addition, six pre-service teachers said “Adequate information isn’t given”, five pre-service teachers think “People are insensitive”, four pre-service teachers said “It was effective at the beginning”, four of them said, “A theoretical project” and three pre-service teachers said, “It’s student-centered”. Some of the statements written by the pre-service teachers on the interview form regarding the 5th question are as follows.

PT38: I think that the Zero Waste Project covers adequate recycling of waste. In order to minimize waste, maximum importance is given to recycling in this project.

PT39: If Zero Waste Project can be taken into consideration and the project can be continued, sufficient recycling can be done in the future.

PT40: I don’t think it’s enough. Because we do not divide the wastes into certain waste bags at our houses.

PT57: The Zero Waste Project is an applicable project with a more sensitive and conscious approach to people.

PT96: Thanks to the Zero Waste Project, I saw people in the community becoming conscious.

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

As a result of the research conducted in order to determine the opinions of pre-service science teachers about recycling, it was determined that the pre-service teachers expressed the following concepts.

- Separating wastes; reducing environmental pollution, resource-saving, economic contribution, it provides easiness at business, ecological balance, efficient recycling, reducing soil pollution,

- Contribution to the country; contributes to the economy, save money, reduced raw material requirement, it protects natural resources, reduced damage to the environment, it advances development,

- Recycling at universities; inadequate education, adequate education, there should be a practical education, there should be an education to create awareness, an adequate education is given in the course of environmental science, there could be better education,

- Recycling at secondary schools; theoretical knowledge is given, adequate education is not given, the level of implementation was inadequate, adequate education is given, teacher education is effective, some projects should be made, and

- Zero waste project; efficient study, it isn’t adequate, adequate information isn’t given, people are insensitive, it was effective at the beginning, a theoretical project, it’s student-centered.

Grouping recycling wastes is very important for the recycling process. In this respect, the disposal and preparation of the garbage in the place where it was first created makes it more suitable for the subsequent transformation processes (Curran & Williams, 2012). The system has been set up with zero waste principle for the purpose of placing the current system on a more regular, systematic and practical basis, in order to prevent wastes, to make more efficient use of natural resources, to
prevent or to minimize waste generation by reviewing the reasons and to recycle the waste in its source in the case of waste generation. Zero Waste Project will be implemented gradually in the framework of the Zero Waste Management Action Plan, which includes the period of 2018-2023. It is aimed that Zero Waste Project will gradually be put into practice in public institutions, educational institutions (universities, schools, etc.), terminals (airport, bus station, railway station, etc.), in hospitals, in big workplaces in 2018 and throughout Turkey in 2023 (Çevre ve Şehircilik Bakanlığı [Republic of Turkey Ministry of Environment and Urbanisation], 2017). As it is known, waste is the main source of urbanization and environmental problems. In order to achieve this goal, firstly, information infrastructure should be established and all segments of the society should be made aware of this issue. The most effective way to do this is through training. The implications for research and implementation were discussed and it was concluded that pre-service teachers should be provided with practical training on the recycling of wastes and training should be provided to make the Zero Waste Project more widespread.

Lecturers should pay attention to the importance of beliefs of pre-service Science teachers over recycling. Pre-service teachers should be given an opportunity to offer a rich educational environment and to carry them beyond in order to realize them. The participants who are future science teachers should be given opportunities to work with their friends together and to develop projects regarding recycling and zero waste. Oskamp et al. (1991) pointed out that the presence of friends and other important ones would be an effective factor for individuals in the realization of recycling. In line with it, Kelly et al. (2006) maintained that teachers need the support of their colleagues in their daily tasks and it also increases their motivation. In this sense, Giusti (2009) pointed out that teachers mostly learn from their colleagues. Jučevičienė and Lepaite (2003) indicated that in-service training would give important chances to teachers and make them attain such new skills as developing oneself and exhibiting oneself and strengthens their current knowledge. In this respect, similar to in-service training, recycling and zero waste training and workshops could be arranged for pre-service teachers and they could be integrated into their training. In order that these teachers understand its importance more at school, they could be trained about sustainable development education (Davis & Gibson, 2006; Wells & Lekies, 2006). Having a sustainable future, the clues of recycling, the experiences obtained could change their beliefs and perspectives and help them attain a different perspective (Emanuel & Adams, 2011). The pre-service teachers could be aware of the practicability and usability of recycling performance. In addition, they could be aware of the fact that recycling is not only an environmental problem but also it is a hopeful solution for social and economic affairs and that active citizen involvement, particularly their involvement as the ones raising the future generations is of importance in order to cope with these problems.

Natural resources are not our personal property. Using them carefully, we should transfer them to the next generations in the same amount and cleanliness (Gercek, 2007). In this context, recycling is the effort of humanity with his own wastes. Recycling slows down the consumption speed of our natural resources and protects nature. Separation of our wastes to regain them needs collecting the same types in the same place. What is regarded as a waste when thrown together becomes a raw material out of which we can reproduce something when collected by separation. Such that, the cost required for the recycling of waste materials could sometimes exceed the cost needed for the production of that material. Natural resources are not our belongings. We make a contribution to the ecological footprint by using them carefully and handing them down to the next generations with the same cleanliness and quantity (Gercek, 2007).

In line with the results obtained from the research, the following recommendations were made.

1. Although the major task in education for recycling falls on educators, a concept with such broad and important goals cannot be burdened by educators alone. Therefore, in the future, it is likely to think to reach other faculties (engineering, architecture, law, medical faculty, etc.) in addition to the education faculties of higher education as decision-makers.
2. Studies can be carried out into the knowledge, attitudes, behaviours and practices of faculty members who have an important share in the opinions of university students on recycling.

3. In order to better understand the importance of recycling in higher education institutions, appropriate content should be placed in the curriculum.

4. Symposia, congresses, interviews, wide participation events and encouraging competitions, projects, and education related to recycling can be raised to increase the awareness of the targets.-making and implementing positions in the name of education for recycling.

5. Some studies are carried out by the Ministry of Environment through a program called Water Detective at primary and secondary school levels and with the school visits, the policy of using water actively are told to children practically. It is possible to carry out a common study by the Ministry of Environment and pre-service science teachers for the sake of increasing the consciousness level of children over recycling.

6. Deactivating wastes, indirect recycling and zero waste processes are of importance for sustainable development and ecological footprint. Thus, we should give necessary importance to these studies.

REFERENCES


Ziya Gökalp and the Development of Sociology Education in Turkey

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Abstract

The development of sociology in the Ottoman Empire in the nineteenth century is closely related to the modernization efforts of Ottoman state bureaucracy and ideological discussions of rising intellectuals on the future of the Empire. To a great extent, these rising intellectual movements, namely Ottomanism, Islamism, and Turkism, were trying to revive the Ottoman State from the impasse, which was the consequence of losing power against the West. Both the socio-political atmosphere and intellectual climate of the era were the main conditions that gradually shaped the direction and development of sociology in Turkey. The aim of this study is to elucidate socio-cultural and ideological factors influential in the development of sociology education in Ottoman-Turkish society. This study further aims to evaluate Gökalp’s role in and contribution to the development of sociology education in Turkey. This study also claims that of the modern Turkish intellectuals Gökalp is very crucial in terms of grasping both the secular dimension of the modern western civilization and unique characteristics of Turkish society.

Keywords: Turkish Sociology, Ziya Gökalp, Modernization, Turkish Intellectual

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INTRODUCTION

Following the Ottoman-Russian War in Crimea between 1789 and 1792, the defeat of the Turkish army and the land losses first starting with Crimea and continuing with the Caucasus led to new quests among Ottoman statesmen for renewal and modernization of the military. The first efforts to renew the Ottoman army began during the reign of Sultan Selim III but his efforts to abolish the Janissary corps ended with a catastrophe for him. The Sultan paid the price for this attempt with his life. After Selim III, Mahmud II succeeded to the throne and he did not only abolish Janissary corps but also extended his reform/modernization efforts from the military to other socio-cultural areas, particularly the educational system and state bureaucracy. Moreover, during his rule, the Ottoman state had close contact with Europe. New embassies were established in Western countries, especially in France and England; many Turkish students were sent to these countries to have modern education, especially in the area of physical sciences. Despite all these efforts of reformation, the territorial losses in the Balkans, the main hinterland of the Ottoman Empire, still continued under the influence of both Russian propagation and Western states’ economic dominance in the region. As a matter of fact, after the eighteenth century, Ottoman economy had become more and more dependent to the Western capitalist world economy, which significantly increased in later years, especially after the *Balta Limanı Treaty* of 1838 signed between the Ottoman State and England and “[t]he avenue of influence thus opened to Europe was widened by the proclamation of the 1856 liberal reform charter called the *Tanzimat*” (Berkes,1936, p. 240). The non-Muslim citizens of the Empire were now legally protected by Western states and thus they became more advantageous than the Muslim subjects of the empire especially in commerce and trade, which naturally brought about discomfort and upheavals not only among the members of the Ottoman state bureaucracy but also in the other groups of society, and even the ordinary Muslim citizens of the empire became upset with the emerging situation (Çetinkaya, 2014, p. 210). As a reaction to this situation, therefore, the members of the *Party of Union and Progress* aimed to create a national bourgeoisie from the Muslim subjects of the empire. This aim subsequently became the main economic policy of the modern Turkish Republic too:

…Towards the end of the nineteenth century a new group was emerging within the Moslem population, whose material conditions—whether as petty producers or specialists in accounting and maximization—allowed them to acquire a notion of the social system substantially different from the traditional Ottoman one. This group, although later participating in the Young Turk and Kemalist projects, and supporting the Turkification of the economy, found itself in conflict with the mainstream of the bureaucratic class, precisely because of its more liberal conception of the social and economic order (Keyder, 1987, p. 41).

In terms of the development of sociology in Ottoman-Turkish society, sociology can be said to have an institutional embodiment immediately after the rise of French sociology in Europe in the nineteenth century, which is also closely related to the emergence of modern intellectuals in the Ottoman-Turkish society. In the nineteenth century, the rise of The Ottoman-Turkish intellectual was mostly due to the above-mentioned modernization efforts of the Ottoman state itself. Therefore, the main concern of the rising intellectual movements of the era - Ottomanism, Islamism and Turkism—was strongly focused on a central question: How to revive the Ottoman State from the *impasse* as a result of losing power against the West. In this atmosphere intellectuals commonly directed their orientation to Western thought, especially sociology, in order to find out solutions to the problems resulted from sudden changes such as Europe’s increasing political and economic dominance in the Balkan region and the rise of political upheavals and nationalist movements among the non-Muslim subjects of the empire (Coşkun, 1991, p. 13). In these worsening economic and political conditions of the empire, the main concern of both the rising Ottoman intellectuals and the members of modern state bureaucracy was similar and mostly centered on such a question as “how to save Ottoman State” from the impasse, resulted from the loss of power against the West. Although they were opposing to the increasing domination of the West over the Ottoman Empire, they sought solutions to their socio-
economic problems either in ideologies or philosophies that became widespread after the Enlightenment in the West.

The Three Intellectual Movements in Ottoman-Turkish Society: Ottomanism, Islamism and Turkism

The rising Turkish intellectuals in the nineteenth century had entirely similar views on the modernization (muasırlaşma) of Ottoman-Turkish society in spite of their substantial ideological differences in many aspects. Contrary to traditional ulama, these modern ideologies - Ottomanism, Islamism, Turkism and Westernism - sought the solution not in tradition, but in the Western science and technology that they conceived as an essential dimension of modernization. In other words, they naively believed that the future of the Ottoman state rested in modernization, especially in its ability to transfer Western science and technology to Ottoman-Turkish society. However, they did not have any agreement on the role of the Western culture in this process. Although they had a similar view on the technological and scientific supremacy of the modern West, they had different approaches to the cultural elements of Western societies. Therefore, the main discussion of Turkish intellectuals in the nineteenth century was about the distinction between culture and civilization. They discussed modernization mostly on the concepts of culture and civilization.

In the nineteenth century, the first intellectual movement emerged in the Ottoman State was Ottomanism of which popularity was primarily rooted in some socio-cultural factors in Ottoman society. As a response to the rise of nationalist sentiments in many parts of the Ottoman empire, especially in the Balkan region, the leaders of Young Turks, namely Namuk Kemal and Ziya Pasha, aimed not only to develop a common ideological identity that would hold all non-Muslim and Muslim subjects together under the same banner [Ottomanism] but also to make the necessary legal and political arrangements (Kaçmazoğlu, 2013, p. 137-138). Young Ottomans turned their faces to the political ideas and concepts developed in the modern West to create an ideological ground for their ideals; with these objectives in their mind, they tried to find out their counterparts of such Western concepts in Islamic tradition, especially those regarding state and society. In relation to this aim of Young Ottoman intellectuals, Mardin claims that Namuk Kemal’s intension was to make a “synthesis between Islamic and Western political conceptions” (Mardin, 1962, p. 287). In fact, however, Namuk Kemal’s views, especially his formulization of the concept of homeland, are not identical with the concept of nation-state developed in the modern West; rather his conception of it encompasses all the geographies from North Africa to the Balkan region that were under the control of the Ottoman State.

It is possible to see the Ottomanists’ views on culture, in particular, Islam by considering Namuk Kemal’s objections and opposition to Ernest Renan’s views on Religion and Science. Ernest Renan held a conference in Paris, where he blamed all religions, including Islam for hindering all civilizational developments especially techno-scientific developments in human history. Shortly after this conference, his views on Islam and science echoed in the Muslim World, especially among the Ottoman intellectuals who intensively debated whether or not Islam as religion hindered the technological and scientific developments that existed in all human history. Namuk Kemal was the first intellectual in the Muslim world who harshly criticized Ernest Renan's views on Islam in his book, Renan Müdafiyanamesi, which subsequently inspired many articles and books written by the Muslim intellectuals against Renan in the Muslim World (Mardin, 1962, p. 324-325). Moreover, as Aydın states, “The rejection of Muslim intellectuals against the thesis put forward by Ernest Renan in his speech ‘Islam and Science’…deeply affected the approaches to both the history of Islam and Ottoman science” (Aydın, 2004, p. 33). In fact, their objection was not to Western science and technology but to socio-cultural factors of Europe, since they did not conceive any contradiction between modern science and technology developed in the West and the cultural values of Muslims, resulted from the true essence of Islam. In the nineteenth century, just like other conservative groups, they believed that Islam did not impede progress. Therefore, Namuk Kemal’s objections and opposition to Ernest Renan’s views on religion and science obviously reflect their common approach
to Western science and technology and the distinction they made between the (Western) civilization and culture.

On the other hand, the territorial losses in the Balkans had a negative effect on Ottomanism. It may be considered as an important factor in the orientation of Turkish intellectuals towards such new ideological quests as Islamism, Turkism and (ultra) Westernism. The loss of the Balkans could be seen as the main reason for the prevalence of pessimism and despair among the Turkish intellectuals, which resulted in, as in the case of Dr. Abdullah Cevdet, the rise of followers of prominence and prevalence of the French materialist philosophy. Gökalp was defending Ottomanism until the loss of the Balkans, but later under the influence of Akçura and Hüseyinzade Ali, he became not only the follower of the Turkish nationalism but also a leading figure of the Party of Union and Progress and Modern Turkish State.

After Ottomanism, Islamism became far more popular among Turkish intellectuals in the nineteenth century. Unlike the Young Ottomans, who aimed to develop an ideology that would hold all subjects (Muslim and non-Muslim) of the empire under the same banner, Islamists were defending the political and territorial unity of all Muslim believers (ummah) against Western imperialism. In fact, this view of Islamists largely coincided with the pan-Islamist politics of Abdulhamid II (Akçura, 1976, p. 22-23). Yet, there were many similarities between Ottomanism and Islamism in virtue of their approach to Western civilization and culture. Just like the Ottomanists, they made a distinction between science and technology and Western culture, and many of them were of the opinion that in essence Islam as a religion did not contradict with the scientific and technological developments, either existed in the West or in any parts of the world, even in China; yet their objections were directed to religious and cultural dynamics of Western societies. Therefore, many Islamists of the era believed that in order to revive Ottoman society from the impasse, they could, just like the Japanese Empire did, transfer science and technology from the West and thus build their Islamic civilization solely on the grounds of their own religious values and culture. However, Westernist intellectuals rejected Islamists’ distinction between the elements of Western civilization (science and technology) and culture on the grounds that it was impossible to make a clear distinction between civilization and culture.

In relation to the development and ideological background of Westernist intellectuals, it could be claimed that as it was evident in the case of Abdullah Cevdet, many of them were profoundly affected by the French Enlightenment which was materialist in essence. The following factors were very crucial in terms of both the diffusion and prominence of Western thoughts and the rise of Westernist ideas in the Ottoman Empire in the nineteenth century. After the establishment of embassies in many European cities in this century, the Ottoman intellectuals and statesmen closely became acquainted with the western culture together with rising ideologies of the time. The Ottoman State had established embassies in many European cities and sent statesmen to these cities for political and economic reasons. Similarly, many Turkish students were sent to Western countries, especially France with the purpose of having an education on physical sciences so that they would later be the active agents in transferring western science and technology to the Ottoman State. In spite of this fact, in time they were very much influenced by the Enlightenment Philosophy, other social sciences, and Western literature and they conveyed these views to the Ottoman Empire, especially by means of translations. As Ülken (2007, p. viii-ix) states, materialist views of French intellectuals were conveyed to the Ottoman Empire largely by intellectuals interested in literature and poetry at that time.

Another intellectual movement that emerged in the nineteenth century was Turkism. Like Ottomanism and Islamism, the rise of Turkism in the Ottoman state was mostly affected by land losses in the Balkans and the Middle East Regions. However, before Turkism emerged in the lands of the Ottoman Empire, it had already begun to be popular among the Turkic communities in Russia, especially the Crimean and Kazan Tatars. It was these Turkish intellectuals who came to the Ottoman Empire from Russia carried Turkism and nationalist sentiments to the Ottoman geography. Among these Turkic intellectuals of Russia, Yusuf Akçura was the most prominent figure in particular because
he put Turkism as a political ideology first on the agenda of Ottoman-Turkish intellectuals (Kaçmazoğlu, 2013, p. 137).

In his book, Üç Tarzl Siyaset, Akçura evaluated the three popular ideologies of his time, namely Ottomanism, Islamism and Turkism in terms of their significance for the future of the Ottoman State. He claimed that neither Ottomanism nor Islamism could be effective in maintaining the power and the integrity/unity of the Ottoman State at a time when nationalism was spreading rapidly and effectively in the Balkans and the Middle East. Therefore, as he was aware of the role of Islam in maintaining social solidarity and integrity, he believed that the sense of solidarity offered by religion should be also used for the unity of the Turkish world. Moreover, it was Akçura who first pointed out the secular and individualist characteristics of the modern West just like Gökalp would discuss it later (Akçura, 1976, p. 24-35). As stated above, Akçura was a very influential figure in the rise of Turkism as a political ideology in Ottoman society. As Tokluoğlu (2012, p. 124-125) indicated that Akçura and Hüseyinzade Ali’s views influenced Ziya Gökalp’s understanding of the Turkish nationalism. However, according to some, there are differences between Akçura and Gökalp in terms of their understanding of Turkism and Turkish nationalism. For instance, unlike Akçura’s political Turkism (pan-Turanism), Gökalp’s understanding of nationalism is not Pan Turkism but it is mostly based on the ideal of creating a new Turkish nation from different ethnicities living in Anatolia. In other words, he tried to formulate ‘Turkishness’ as a unifying principle that holds different ethnic elements in Anatolia under the same identity.

Gökalp’s views on modernization do not see enormous differences among the thesis of various intellectual groups in the Ottoman empire such as Islamism, Modernization and Turkification. On the contrary, he believes that despite their ideological differences, they share a common view regarding the modernization of Ottoman-Turkish society because they essentially recognize this process as vital for the future of the Ottoman Empire. Even Gökalp himself perceives Islamism, Modernization and Turkification as the most important dynamics of Ottoman-Turkish society that could complement each other. Nevertheless, he criticizes the thesis of both Islamist and Westernist intellectuals of his age in the sense that neither Ottomanism nor Islamism could be effective in maintaining the power and the integrity/unity of the Ottoman State at a time when nationalism was spreading rapidly and effectively in the Balkans and the Middle East. He also condemns Westernist intellectuals in their efforts as they already failed to recognize the individualistic dimension of the Enlightenment philosophy. However, for Gökalp, what is necessary for Turkish society is not individualism, but “collective consciousness” and social solidarity (Berkes, 1954, p. 382-383). As stated by Davison (1998) he is one of the intellectuals of the nineteenth century who noticed both the individualistic and the secular dimension of modern society. Consequently, in his oeuvre, his main objective is not only to question the realization Turkish nation state in the age of nationalism but also to find out proper ways to a healthy interaction between Western civilization and national culture at a time when secularism is becoming the main characteristics of modern society. Therefore, he directed his attention to sociology since he believed that only sociology as positive science could perform important functions in identifying the basic characteristics of Turkish culture which are crucial for understanding the dimensions of Turkish modernization:

His writings, both scholarly and popular, were shaped by science has a social purpose. Impacted by French sociology (in particular he believed that sociology and history should play an active role in politics, the formation of what he termed the “national ideal (mefkure)” (Dressler, 2015, p. 512).

Ziya Gökalp and the Development of Turkish Sociology

It is evident that the above-stated ideological movements which were emerged in the nineteenth century with the sole motivation of reviving the Ottoman State against the rising dominance of the West did not have any philosophical or intellectual tradition, which was the case in the Western culture. Although the Enlightenment philosophy in the West developed against medieval thought, it
preserved its continuity with the philosophical tradition that stemmed from the ancient Greek philosophy. For example, as Çav indicates that for Cahit Tanyol, one of the prominent Turkish sociologists, unlike Western societies, the development of sociology in Turkey is not stemmed from any philosophical tradition; its development was rather the result of the prominence of history among the Ottoman intellectuals. Therefore, Tanyol perceived Ahmad Cavdat Pasha as “the first founder of sociology in Turkey” (Çav, 2020, p. 27). Tanyol’s perception of Ahmet Cavdat Pasha as the first founder of Turkish sociology is largely due to Ibn Khaldun’s influence on the views of Cavdat Pasha in relation to history and society. Concerning the Ottoman philosophical tradition Berkes is of the opinion that until the nineteenth century, there were only two prominent philosophical traditions that had validity among the Ottoman literati: Of these two traditions, Aristotelian tradition was the most extensive and prominent “philosophy among the Turkish thinkers of the Empire since [a]ll the thinkers of the Ottoman period followed the same tradition of endless reinterpretations of the Aristotelian philosophy” (Berkes, 1936, p. 238). Although Berkes considered this Aristotelian tradition as “the dominant philosophy” among the Ottoman thinkers, the second tradition mostly influenced by Ibn Khaldun’s philosophy of history was very crucial in terms of the development of Turkish sociology in modern times:

Another tradition exerting a direct influence upon modern sociology had been followed by Turkish historians... The second school of historians, which arose after the sixteenth century, had been influenced by Ibn Khaldun’s philosophy of history. Particularly influenced by the latter’s Prolegomena to his history, these Turkish historians recognized a new notion of historical causality. Mustafa B. Abdullah Katib Chelbebi, better known as Haji Khalifah (1609-57), in his Chronology of History, gives an organismic interpretation of history. Each state, according to him, passes through the periods of growth, maturity, and decay and gives way to new forms (Berkes, 1936, p. 239).

At the same time, for him, these two traditions, namely “Aristotelian philosophy” and Ibn Khaldunian “theological and geographical-organismic interpretations of history” were so extensive among the Ottoman literati until the nineteenth century, “when the Turks gradually turned to Western thought” (Berkes, 1936, p. 239). For instance, Naima and Ahmad Cavdat Pasha did not only translate some parts of Ibn Khaldun’s Muqaddima from Arabic to Ottoman Turkish but also tried to explain the Ottoman history, in particular the decline of the empire by referring to Ibn Khaldun’s views on socio-cultural elements causing the collapse of the state. Therefore, just like Tanyol, many Turkish sociologists such as Sezer and Ülken also recognized Cavdat Pasha as the first sociologist before Turkish intellectuals turned their face to western philosophy and sociology.

The rise of sociology in Ottoman-Turkish society was rooted in Ottoman intellectuals’ curiosity in European thought in order to seek solutions to their socio-economic problems. Yet, even in modern times, as it can be seen in the examples of Naima and Cavdat Pasha, the Ottoman ilmiyye (traditional scholars) generally sought solutions to such problems by referring to either these two classical traditions or Islamic jurisprudence. Until the rise of the first reforms movements in the military, especially in Navy School (Bahriye Mektebi) in the eighteenth century, either Ottoman statesmen or the members of ilmiyye class as in the case of Koçibey, tried to solve their socio-economic problems by referring to ongoing practices or tradition. Ottoman statesmen or the members of ilmiyye class interpreted their problems both in the economic realm and political area as a deviation from the practices of (an idealized) past. As late as the nineteenth century, a great scholar and statesman like Ahmet Cavdat Pasha sought solutions to existing socio-economic problems of the Ottoman state in the views of Ibn Khaldun who lived in North Africa five centuries before him. Therefore, the rise of modern intellectuals and the spread of Western thought among the Ottoman intellectuals in the nineteenth century started when Ottoman statesmen and intellectuals gradually turned their curiosity to Western thought and philosophies in general and French Sociology in particular.
On the other hand, in the nineteenth century Ottoman World, these rising ideological movements, even Islamism, mostly stemmed from the increasing contacts between Turkish intellectuals and politicians and Western culture and new ideologies, especially the post-Enlightenment philosophies. As Tuna pointed out that “the development of sociology in Turkey began quite early compared to many Western countries” (Tuna, 1991, p. 31). The interest of Turkish intellectuals and statesmen to Western philosophy and sociology was largely due to political and ideological reasons, especially their quests and efforts to “save the state” from the impasse resulted from the rising dominance of the West in the Ottoman geography. This ideal of “preventing the state from the collapse” prompted the Turkish intellectual to engage with all kinds of ideas and ideological movements developed in the West (Tuna, 2015, p. 4). According to Berkes, “the influence of European social thought” on Turkish statesmen and intellectuals in a real sense began to increase after the Tanzimat:

They had been, however, already acquainted with Western thought. Before the proclamation of the Tanzimat, Raif Mahmud Efendi, who had lived for several years in England and who was one of the first translators of scientific books from English, had repeatedly urged the adaptation of the English political system to Turkey. Reshid Pasha, who was chiefly responsible for the reform charter, and actually the writer of it, had lived in London and Paris as a diplomat. The influence of European social thought appeared, however, in a more systematic way only after the Tanzimat (Berkes, 1936, p.239-240).

Following the Tanzimat, many Turkish intellectuals and statesmen such as Ibrahim Shinasi, Ziya Pasha, and Namuk Kemal, went to European cities as students or exiles, where they “developed their political doctrine” and “interested in many fields in literature, philosophy, political science, history, and economics.” During their stay in European cities, most of them also wrote many books and translated the books of Western philosophers into Turkish to defend “the constitutional government” (Berkes 1936:240). Besides, although they were influenced by the different social/philosophical thoughts in the West, French sociology exerted great influence on the development of sociology in Turkey. Regarding this influence of French sociology on the development of Turkish sociology, Sezer (2012, p. 29) is of the opinion that the development of sociology in Turkey could be divided into two main periods: “the first period of its development is outweighed by the effect of French sociology” and subsequently it was American sociology which determined the later development of sociology in Turkey, especially after the 1960s. Most of the Turkish intellectuals who went to Paris as political exiles or students were not only interested in French social and political thoughts, especially French Sociology but also had a very intimate and close relationship with French sociologists too. Ahmet Riza is conceived as the first Ottoman dissident who had an intimate relationship with French sociologists. However, it is also known that before Ahmet Riza, especially during the Tanzimat period, for instance, Comte, the founder of sociology had a close relationship with Ottoman politicians, especially Mustafa Reşid Pasha who was known as the architect of the Tanzimat reforms in the Ottoman society. Nevertheless, Comte’s ideas found a little echo among the Ottoman intellectuals. It is also known that Ali Suavi interested in Le Play School before Ahmet Riza and Prince Sabahaddin (Tuna, 1991, p. 31). Similar to Ahmet Riza, another Ottoman positivist, Abdullah Cevdet had a close relationship with Gustav La Bon, a French social psychologist and even translated his books into Turkish (Sezer, 2012, p. 29). Furthermore, Prince Sabahaddin and Ziya Gökalp had a decisive role in the introduction and the development of Turkish Sociology. According to Berkes, Prince Sabahaddin “was the first sociologist of the Westernist Turkish thinkers… [as a] physical scientist like…Le Play…studied in Paris from 1904 to 1906 with the followers of the Le Play school… contended that private ownership is the foundation of the modern state and” (Berkes, 1936, p. 241).

Prince Sabahaddin, as a follower of French sociological tradition, that is Le Play, had far more liberal tendency since he saw the future of the Ottoman Empire in the development of liberalism and private ownership. He did not only accept Le Play's sociological views, formulized in Les ouvriers...
Europeens but also, in line with Le Play’s views, criticized the centralist state tradition of the Ottoman empire. For him, the main difference between Western and Eastern societies results from the fact that in the West individualism is the basis of all kinds of socio-cultural developments and freedom; however, in the East, especially in the Ottoman Empire, it is the state power that shapes all areas of human life. Therefore, for him, it is a futile effort to modernize Ottoman society without the development of an individualistic culture that is the most important characteristic of Western societies (Sabahaddin, 1965, p. 44). On the other hand, as many Turkish sociologists, especially Niyazi Berkes and Hilmi Ziya Ülken claim that Ziya Gokalp (1875-1924) is the real founder of Turkish sociology rather than Prince Sabahaddin. It is known that from his earlier ages Gokalp had been interested in general French sociology but in particular Durkheim’s sociological views. In spite of this influence, Gokalp’s sociological views and thesis on Turkish culture could not be seen as the only transmission or the adaptation of Durkheim’s views into Turkish society:

Ziya Gokalp (1875-1924) was the real founder of Turkish sociology, since he was not a mere translator or interpreter of foreign sociology, though his sociological system was founded on Durkheim's works. He accepted Durkheim's methodological views as they were expounded in Les regles de la methode sociologique, and used all his terminology. By adaptation and additions to certain points he made his system almost a native product (Berkes, 1936, p. 242).

Regarding the sociological views of Gokalp, Kayah (2008, p. 33) states that in the history of Turkish Sociology he is the first Turkish sociologist whose scientific objective is to explain local, social dynamics of Ottoman-Turkish society with the help of Western sociology. As previously stated, unlike Western intellectuals, he is not in favor of the transfer of social ideas and philosophies developed in Europe after the Enlightenment. Being aware of the secular dimension of modern civilization, Gokalp brought forth criticism against individualism developed in the Western culture; he was uncomfortable with individualism existed in the modern society because he believed that collectivism and social solidarity were much more adequate to the nature of Turkish society rather than individualism (Berkes, 1954). Therefore, although both Prince Sabahaddin and Gokalp had a decisive role in terms of the introduction of French sociology into Ottoman Turkish society, their sociological views were absolutely opposite to each other. Contrary to Prince Sabahaddin’s far more liberal and individualist views, Gokalp was the advocate of both collectivism and statism, both of which subsequently became the founding ideologies of the new state especially after the establishment of the Turkish Republic in 1923. Moreover, his views had a decisive role even during the last decade of the Ottoman Empire because he was the first Turkish intellectual propagated the idea of creating the national bourgeoisie vis-a-vis the rising non-Muslim bourgeoisie in Ottoman Society. Therefore, Gokalp could be also seen as the ideological founder of The Party of Union and Progress. Before the establishment of the first chair of sociology in Istanbul University in 1912, he started teaching sociology in Salonika. During his stay in Salonika, he delivered sociology lectures to the members of the Party of Union and Progress (Coskun, 1991, p. 14).

After his return from Salonika to Istanbul, he founded the Department of Sociology at the Istanbul University in 1912. However, sociology education at the faculty did not last long because following the British occupation of Istanbul in 1917, he was exiled to Malta. From 1912 to 1917 he had thought sociology as a professor in that chair and also “founded a research institute of sociology, named as Ictimaiyyat Dar’il Mesaisi and published Journal of Sociology” (Berkes, 1936, p. 243). Gokalp’s membership to the Party of Union and Progress and his disciples’ efforts contributed to the spread of sociology education not only in the Turkish universities but also in the secondary and high schools, especially after the establishment of the Turkish Republic in 1923 (Ulken, 2008, p. 51-52). During his captivity years in Malta, he gave sociology conferences to other Turkish prisoners. When Gokalp was exiled to Malta, his deputy Necmeddin Sadak became the head of the Department of Sociology, which regretfully deprived of its previous importance and weight that it had during the time of Gokalp (Coskun, 1991, p. 16). Returning from Malta in 1921, Gokalp continued his studies on Turkish culture. Prior to his death in 1923, his work, The Principles of Turkish Nationalism was
published. As Berkes (1936, p. 244) illustrates the central themes that reoccur throughout his oeuvre are as follows:

He gave the results of his sociological approach to the social problems of Turkey to the political leaders of the nation in three words: “Turkify, Islamize, and Modernize,” which became a slogan in furthering the reformations of the country. He showed them which elements should constitute the national culture, and, on the basis of this culture, to what extent the elements of the Islamic and the European civilizations should be adopted or rejected, so as not to permit conflicts among these three forces which were reflected in the life of the people of his time.

Gökalp’s formulization of national culture as the most appropriate basis of synthesis among Turkification, Islamization and Westernization became the guiding principles or the basis of subsequent academic studies for social scientists studying on Turkish culture and religion. For instance, the works of Fuat Köprülü, especially his studies on Turkish culture, in particular, the religious culture of Turkish society could be seen as the studies too much inspired from Gökalp’s ideas concerning the socio-cultural structure of Ottoman society. In this sense, Gökalp could be seen as the first sociologist in Turkey as he stressed the presence of two opposing structures or dualism that could be observed, from music to religious beliefs in all areas of life in Ottoman-Turkish society, became the main obstacle to the modernization of Ottoman-Turkish society:

Until fifteen years ago there were two Turkish languages current in this country. One was official and was used exclusively for writing. This was called Ottoman. The other was the language of the common people. It was known, in a derogatory sense, as Turkish. It was believed to be the ’slang’ of the common people. In fact, it was the real and natural language of the nation. The Ottoman language was nothing but an artificial mixture of the grammar, syntax, and vocabulary of Turkish, Arabic, and Persian Turkish developed naturally. It was the language of our own culture. Ottoman was a language consciously and rationally made by certain individuals. Only a few Turkish verbs or prepositions found their way into this mixture of languages. There was only a small fraction of our culture in it. It was the language of the civilization of the Ottomans (Gökalp, 1959, p. 105).

Gökalp believes that when the new Turkish nation overcomes this dualism by eliminating the artificial elements and residues diffused from foreign cultures and societies, such as Persian and Arabs into Turkish society, then a healthy synthesis between (Western) civilization and (national) culture becomes possible. Therefore, Gökalp’s view on the presence of two opposing structures or dualism in Ottoman-Turkish society either echoed or became a paradigm among the Turkish social scientists who studied Turkish culture or different socio-cultural dimensions of religion (Islam) in Turkish society. Moreover, Gökalp’s influence in Turkish social sciences continued until the 1960s. As Kayalı (2008, p. 33-34) stated that by the 1970s, most of the sociologists in Turkey, whether they were criticizing his ideas or not, published studies on Gökalp’s intellectual identity or his views. However, especially after the penetration of American sociological tradition in Turkey, academic interest in Gökalp subsequently began to decrease. After all, many Turkish sociologists believe that Gökalp is not only the real founder of Turkish sociology but also did introduce French Sociology, in particular, Durkheimian sociology into Turkish academy.

**Concluding Remarks**

There is a close relationship between the rise of Turkish intellectual movements - Ottomanism, Islamism and Turkism- and the development of sociological thought in Ottoman-Turkish society. These rising intellectual movements mainly concerned with a central question: “How to save the State” from the impasse, resulted from Europe’s increasing political and economic dominance in the Balkans and the Middle East and the rise of political upheavals and nationalist movements among
the Muslim and non-Muslim subjects of the Ottoman State. Therefore, in these worsening economic and political conditions of the empire, Ottoman intellectuals together with the members of modern state bureaucracy gradually turned their interest to Western social and political thoughts to find out solutions to such problems. From the nineteenth century onwards, while the Turkish intellectuals were opposing to the western domination in the Ottoman geography, they also sought solutions to their socio-economic problems, resulted from this dominance in western thought and techno-scientific developments in the West. This can be seen as the Janus faces of Turkish modernization.

In the late nineteenth century and evermore in the twentieth century, many Turkish intellectuals from different ideological camps, went to European cities, especially Paris and London either as students or exiles and they mostly focused on Western philosophy and sociology contrary to the basic purpose of being effective agents in transferring Western physical sciences and technology to the state. During this period, Prince Sabahaddin and Ziya Gökalp who were two prominent figures had a decisive role in terms of the development of Sociology, especially French sociology in Turkey. As many Turkish sociologists such as Berkes (1936) and Ülken (2007) claim that it was not Sabahaddin but Gökalp who was the real founder of Turkish sociology because Gökalp did not only first establish the Department of Sociology at the Istanbul University in 1912 but also had a decisive role in terms of expansion of French Sociology in general and the prominence of Durkheimian sociology in particular throughout Turkish academy. Although Gökalp’s sociological approach was largely influenced by Durkheimian sociology, it is a great mistake to merely see Gökalp as a social scientist who just translated Durkheim’s sociological views into Turkish sociology; however, in the history of Turkish sociology, he was the first sociologist whose scientific objective was to explain the aspects of Turkish culture with the help of Western sociology. Therefore, he conceived (positivist) sociology as an objective science that could play a very crucial role in terms of identifying not only the essentials of Turkish national culture but also how Turkish society could succeed in its modernization efforts in the twentieth century.

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