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## Assessing University Students' Physical Activity Levels in Terms of Different Variables

**Mehmet Bulent Asma<sup>i</sup>**  
Van Yüzüncü Yıl University

**Yıldırım Gökhan Gencer<sup>ii</sup>**  
Mersin University

### Abstract

This study aimed at assessing physical activity levels of university students who studied at Van Yüzüncü Yıl University in terms of different variables. 20 students who studied at School of Physical Education and Sports (SPES) (10 female students and 10 male students) and 20 students who studied at Education Faculty (EF) (10 female students and 10 male students) participated in the study voluntarily. The steps took during the day were measured by bio-electric impedance method and data about their nutrition, sleep, residence and internet use have been collected via information form and then this information was evaluated. Whether or not data followed a normal distribution was assessed and Non-Parametric Mann Whitney U Test was used for assessments. According to findings; average number of students' daily steps was  $11063 \pm 2198$  in male students while it was  $10308 \pm 1829$  in female students. There was no significant difference in terms of academic schools where the students attended ( $p > 0.05$ ) whereas there were significant differences in terms of sex variable among male students of SPES and EF as compared to female students in the parameters of BMI, body fat ratio and residence place ( $p < 0.05$ ). Besides, there were also significant differences in the number of weekly steps among students of both schools in terms of doing sports variable ( $p < 0.05$ ). However; no statistically significant differences were found in terms of students' internet use, daily sleep length, transportation to schools and number of weekly total steps ( $p < 0.05$ ). As a result, it was noted that physical activity levels of the female and male students were "active" according to literature criteria and average number of daily steps of those students who regularly did sports was high as expected.

**Key Words:** Physical activity, number of average steps, university students

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<sup>i</sup> **Mehmet Bulent Asma**, Instructor Dr., Van Yüzüncü Yıl University, Physical Education and Sport High School.

**Correspondence:** bulentasma30@hotmail.com

<sup>ii</sup> **Yıldırım Gökhan Gencer**, Instructor Dr., Mersin University, Physical Education and Sport High School.

## INTRODUCTION

Poor physical activity status forced by today's life conditions is also seen among university students, who make up the most dynamic population of society and is regarded as a public health concern across the world (Arabacı et al., 2012; Jackson and Howton, 2008; Yusoff et al., 2018; Yıldırım and Altunsöz, 2016; WHO, 2018; Savcı et al., 2006). The physical activity defined by the energy expenditure of the skeletal muscle contractions above the basal level also covers a wide area ranging from daily living activities such as housework, walking, exercise, sports, dance and leisure activities to various sports activities (Ardıç, 2014; Caspersen et al. 1994; Howley, 2001; Thompson et al. 2010).

World Health Organization (WHO) indicates that physical activity level is poor among more than 80% of world adolescent population (WHO, 2018); which is also true for adult population (Arabacı et al., 2012). It is stated that physical activity level of young people decreases considerably after they enter and graduate from university. Research shows that physical activity level is positively correlated with many physiological and psychological variables ranging from quality of life to motivation (Işık et al., 2014; Demirci et al., 2018; Koçak et al., 2017). However, it is emphasized that 50% of university students do not participate in physical activity at a recommended level (Yusoff et al., 2018; Yıldırım and Altunsöz, 2016, Güler and Türkmen, 2018). Physical inactivity is accepted as one of the most important reasons in the increasing number of obese people. Moreover, obesity and non-infectious diseases like cardiovascular disease, diabetes, some cancers and hypertension are closely correlated. Therefore, promoting active life style in all segments of society is important as a national and international public health recommendation (Physical Activity Guidelines for Turkey; WHO, 2018).

In a study in which 5189 students participated from 17 universities of 7 geographical regions of Türkiye; it was identified that 58.9% of female students and 48% of male students were inactive (WHO, 2017). In another study in which 1000 students participated from 4 universities of Ankara Province; it was found that 30.6% of female students and 31.2% of male students lived sedentarily (Vassigh, 2012). It is recommended that particularly adult individuals should perform moderate intensity physical activity 150 hours a week and do exercises targeting at all muscle groups at least twice or three times a week (Physical Activity Guidelines for Turkey; WHO, 2018).

However, national and international studies point out that with aging, individuals' activity levels decline. Particularly; intensity of daily activities of university students decrease gradually from the time they start university and till the time they graduate (Güngör et al., 2018). It is stated that increasing physical activity during university years will help continue physical activities after graduation and will make important contributions to prevent and to treat non-infectious diseases (Arabacı et al., 2012; Yıldırım and Altunsöz, 2016; Jackson and Howton, 2008).

University students are important, reachable and impressive portion of adult population in our country. Therefore, since their physical activity status should be watched with multidimensional and reliable methods, the current study focused on assessing physical activity levels of female and male university students who studied at SPES and EF in terms of some variables.

## METHOD

### Research Group:

The purposive sampling method was used. The sample of the study consisted of 10 female and 10 male volunteer students studying at Van Yuzuncu Yil University Faculty of Education and 10 female and 10 male volunteer students studying at the School of Physical Education and Sports. In the data collection forms, the variables of staying in dormitory and living in the city were taken into consideration.

### Data collection tools:

The, Demographic Information Form, was used to figure out the variables such as age, class, gender, income level, place of residence of the research group. In addition to this, students were asked to fill in Information Request Forms in order to explore some of their daily living habits. Students' physical activity status was measured objectively using pedometer. To this end, participants' number of weekly steps was calculated by using YAMAX SW-401 pedometer –which was used in many studies and provided reliable and consistent results- (Schneider et al., 2004; Arabacı et al., 2012).

### Collection of data:

Students were asked to position pedometer on waistband and waist belts by placing it upper part of their legs, to record number of steps before going to bed and to reset pedometer. Participants' height and weights were measured with SEKA height and weight measuring tool while their body compositions were taken with bio-electrical impedance methods by using Jawon Plus Avis 333 body composition analyzer.

### Analysis of data:

For the data analyses, SPSS 18 package program was used, data were analyzed to explore whether or not they followed a normal distribution and non-parametric Mann Whitney U test and Spearman correlation test were used for calculations.

## FINDINGS

Table 1 presented students' measurement results and data obtained from students' information request forms according to sex variable, Table 2 demonstrated results and data according to variable of academic schools and Table 3 demonstrated results and data according to variable of doing sports. Besides and Table 4 assessed correlation between students' data and number of daily steps.

**Table 1. Comparison according to sex variable**

| Parameters                    | N  | female X±Sd    | N  | male X±Sd      | Z     | P     |
|-------------------------------|----|----------------|----|----------------|-------|-------|
| Age                           | 20 | 2220±128       | 20 | 2295±99        | -2075 | 038*  |
| Height (cm)                   | 20 | 16020±544      | 20 | 17425±706      | -4780 | 000** |
| Weight (kg)                   | 20 | 5445±654       | 20 | 7074±940       | -4748 | 000** |
| B.M.I                         | 20 | 2127±269       | 20 | 2324±201       | -2801 | 005** |
| Body fat ratio                | 20 | 2464±509       | 20 | 1909±407       | -3341 | 001** |
| Average number of daily steps | 20 | 1030810±182974 | 20 | 1106397±219847 | -1014 | 310   |
| Average number of daily meals | 20 | 295±51         | 20 | 310±44         | -983  | 326   |
| Length of daily sleep         | 20 | 845±88         | 20 | 855±119        | -043  | 966   |
| Length of daily internet use  | 20 | 335±108        | 20 | 270±138        | -1502 | 133   |

(\*p<0.05, \*\*p<0.01)

As seen in Table 1, there were statistical differences between participant female and male students in terms of age, height, weight, BMI and body fat ratio parameters (\*p<0.05, \*\*p<0.01). In terms of other variables, no difference was found (p>0.05).

**Table 2. Assessment in terms of academic schools**

| Parameters                    | N  | SPES X ±Sd     | N  | EF X ±Sd       | Z     | P   |
|-------------------------------|----|----------------|----|----------------|-------|-----|
| Age                           | 20 | 2285±134       | 20 | 223±97         | -1469 | 142 |
| Height (cm)                   | 20 | 16760±866      | 20 | 16685±10       | -325  | 745 |
| Weight (kg)                   | 20 | 6141±858       | 20 | 6378±1393      | -311  | 756 |
| B.M.I                         | 20 | 2185±238       | 20 | 2266±271       | -880  | 379 |
| Body fat ratio                | 20 | 2124±568       | 20 | 2248±506       | -798  | 425 |
| Average number of daily steps | 20 | 1096925±256797 | 20 | 1040282±131095 | -108  | 914 |
| Average number of daily meals | 20 | 295±51         | 20 | 31±44          | -983  | 326 |
| Length of daily sleep         | 20 | 84±82          | 20 | 86±123         | -214  | 831 |
| Length of daily internet use  | 20 | 305±99         | 20 | 3±152          | -028  | 978 |

(\*p<0.05, \*\*p<0.01)

As seen in Table 2, when data concerning students were examined according to academic schools, no statistically significant differences were found (p>0.05).

**Table 3. Comparison according to variable of participating in sports**

| Parameters                    | Status | Activity         | N  | X±Sd             | Z      | P     |
|-------------------------------|--------|------------------|----|------------------|--------|-------|
| Age                           |        | Doing sports     | 20 | 22.6±1.5         | -.058  | .954  |
|                               |        | Not doing sports | 20 | 22.55±.82        |        |       |
| Height (cm)                   |        | Doing sports     | 20 | 168.3±9.01       | -.745  | .456  |
|                               |        | Not doing sports | 20 | 166.15±9.98      |        |       |
| Weight (kg)                   |        | Doing sports     | 20 | 63.4±11.48       | -.460  | .646  |
|                               |        | Not doing sports | 20 | 61.79±11.72      |        |       |
| B.M.I                         |        | Doing sports     | 20 | 22.24±2.55       | -.014  | .989  |
|                               |        | Not doing sports | 20 | 22.27±2.61       |        |       |
| Body fat ratio                |        | Doing sports     | 20 | 21.15±5.09       | -.771  | .441  |
|                               |        | Not doing sports | 20 | 22.57±5.63       |        |       |
| Average number of daily steps |        | Doing sports     | 20 | 11486.96±2348.56 | -2.218 | .027* |
|                               |        | Not doing sports | 20 | 9885.11±1271.11  |        |       |
| Average number of daily meals |        | Doing sports     | 20 | 3.15±.48         | -1.651 | .099  |
|                               |        | Not doing sports | 20 | 2.9±.44          |        |       |
| Length of daily sleep         |        | Doing sports     | 20 | 8.3±.97          | -.969  | .332  |
|                               |        | Not doing sports | 20 | 8.7±1.08         |        |       |
| Length of daily internet use  |        | Doing sports     | 20 | 2.7±1.26         | -1.864 | .062  |
|                               |        | Not doing sports | 20 | 3.35±1.22        |        |       |

(\*p<0.05)

In Table 3, data concerning the students were analyzed according to variable of doing sports and difference in average group scores was important in terms of daily average steps (p<0.05).

**Table 4. Correlation values according to number of daily steps**

| Parameters                          | N  | r     | P     |
|-------------------------------------|----|-------|-------|
| B.M.I                               | 40 | .144  | .375  |
| Academic School                     | 40 | -.017 | .915  |
| Body fat ratio                      | 40 | -.041 | .801  |
| Transportation Choice at the campus | 40 | -.085 | .602  |
| Average number of daily meals       | 40 | .121  | .456  |
| Length of daily sleep               | 40 | -.110 | .497  |
| Length of daily internet use        | 40 | -.039 | .814  |
| Status of doing sports              | 40 | -.355 | .025* |
| Residence place                     | 40 | -.115 | .481  |

(\*  $p < 0.05$ )

As seen in Table 4, no significant correlation was found in any of the parameters -except average number of daily steps- according to variable of doing sports  $r = -.355$  ( $p > 0.05$ ).

In this study, female and male students' average numbers of daily steps were  $10308 \pm 1829$  step/day and  $11063 \pm 2198.47$  step/day; respectively. It was identified that difference between groups was statistically not significant in terms of number of daily steps ( $p > 0.05$ ). Similarly; when data concerning the students were analyzed according to variable of academic schools, it was found that SPES students' average number of daily steps was  $10969.25 \pm 2567.97$  step/day while EF students' average number of daily steps was  $10402 \pm 1310.95$  step/day and it was identified that the difference between SPES students and EF students was statistically not important ( $p > 0.05$ ). On the other hand; when the students who did sports and those who did not do sports were compared in terms of daily steps; students' average numbers of daily steps were  $11486.95 \pm 2348.56$  step/day and  $9885.11 \pm 1271.11$  step/day; respectively and the difference was significant on behalf of those who did sports in terms of average number of daily steps ( $p < 0.05$ ). When BMI averages were compared in terms of sex variable; female students' average BMI was  $21.27 \pm 2.69$  kg/m<sup>2</sup> while male students' average BMI was  $23.24 \pm 2.01$  kg/m<sup>2</sup> and the difference between female and male students was important ( $p < 0.05$ ). Accordingly; it may be argued that female students' average BMI was very close to the ideal value (21 kg/ m<sup>2</sup>) while male students' average BMI was a bit above the ideal value (22 kg/ m<sup>2</sup>) but within normal limits. Body fat ratio was  $24.64\% \pm 5.09$  for female students and  $19.09\% \pm 4.07$  for male students; the difference was significant ( $p < 0.05$ ). However, female students' body fat ratio was slightly above the "normal" value. Meanwhile, the difference between the students who did sports and those who did not do sports was found to be insignificant in terms of length of daily internet use ( $p > 0.05$ ).

## RESULT

The study of Tudor-Locke et al. (2008) quoted classification used in the study of Tudor-Locke and Bassett (2004) and an independent classification made by Hatano. According to this classification; our participant students were "somewhat active" and "active". In the study of Arabacı et al. (2012) in which 1113 male and female university students' physical activity levels were determined using pedometer; average numbers of daily steps of male and female students were  $8652 \pm 3258$  and  $8020 \pm 3117$  step/day; respectively and the difference between the groups was insignificant ( $p < 0.05$ ) and male students walked 600 steps more per day. Besides, according to classification of Tudor-Locke and Bassett (2004); it was noted that students' physical activity level was poor. Bahrens and Dinger (2005) found that university students' average number of daily steps was  $11473 \pm 2978$  step/day for a week. In a pre-study done by the same researchers in 2003; it was identified that university students' average number of daily steps was  $9932 \pm 2680$  step/day and they were physically active and it was found that there was no difference between female and male students in terms of number of steps for a seven day period. In the study of Yusoff et al. (2018), Malaysian university students' physical activity levels were measured using pedometer and it was identified that average numbers of weekly steps were  $6030 \pm 2993$  in male students and  $3755 \pm 1432$  step/day in female students and male students

walked considerably more steps each day than female students. 66.4% of the participants were classified as sedentary, BMI difference between sexes was not significant but the difference between sexes was important in terms of body fat ratio. It was identified that students were more active at the weekends and there was no difference between sexes in terms of average number of daily steps. 19298 university students from 23 countries participated in the study of Haase et al. and it was found that female students (38%) led a more sedentary life than male students (27%).

The study of Yusoff et al. (2018), in which Malaysian university students' physical activity levels were measured using pedometer, reported that the difference between weight, height and body fat ratio of female and male students was important but the difference between BMI averages was not important. Also, in this study no significant correlation between number of steps and BMI was found. According to Tudor-Locke classification, they found 37% of the students as sedentary (<5000 step/day) and 48% of them as low active (5000-7499 step/day) in terms of physical activity.

In the study of Jackson et al. (2008), it was reported that students averagely walked 7013.11 step/day at week 1, 29% of them walked less than 5000 step/day, 36% of them walked 5000-7499 step/day and 65% of the students were sedentary or low active. In a study done in Türkiye using Physical Activity Survey; it was found that 58.9% of females and 48% of males were inactive (Kafsad, 2014). In the study of Yıldırım et al. (2015) 906 university students were found moderately active. Besides, another study undertaken by Savcı et al. (2006) with 1097 university students through survey method pointed out that only 18% of the students participated in sufficient level of physical activity and male students were more active than female students but there was no significant difference between BMI and physical activity level.

In the study of Haase et al. (2004) physical activity habits of university students (n=19298) from 23 countries were investigated using survey forms and it was found that recommended activity levels of male students from north west Europe and America, central and east Europe and Mediterranean and developing countries were found to be 30%, 32%, 30% and 23%; respectively while recommended activity levels of female students were 22%, 19%, 22% and 13%; respectively.

In light of these studies and according to data obtained in the current study; average number of daily steps of the participant students was "somewhat active" according to classification published by Tudor-Locke and Bassett and "active" according to standard published by Hatano (1993) (Tudor-Locke et al., 2008). Being different from studies that were done in our country and abroad using different methods and that found university students' activity level insufficient (Arabacı et al., 2012; Gumus and Isık, 2018; Yusoff et al., 2018; Keating et al., 2005; Kızar et al., 2016) the current study found physical activity level as active. This may have resulted from the fact that half of the participants were SPES students and walking distances between student dormitories, dining halls, classrooms and social activity centers at the campus were long. As a result; it was noted that physical activity levels of the participant female and male students were "active" according to literature classification and average number of daily steps of those students who regularly did sports was high as expected. Creating awareness in order to offer university students physically active life habits, increasing their motivation to this end, using campus facilities efficiently and providing them with sustainable life skills will help them lead an active life after graduation.

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## **The Pre-Service Teachers' Metaphorical Perceptions about Syrian Asylum Seekers' Children**

**Gamze Tezcan<sup>i</sup>**

Çanakkale Onsekiz Mart University

### **Abstract**

The aim of this study is to explore the metaphorical perceptions of pre-service teachers about Syrian asylum seekers' children. A metaphor analysis method was conducted with 160 pre-service teachers during the spring semester of the 2017-2018 academic year. Data was collected by a metaphor analysis form. Qualitative and quantitative data analysis were conducted both. Inductive content analysis was done to derive conceptual categories from the metaphors and the frequencies and percentages of participants who represent each metaphor and each category were calculated. The findings show that the most of the pre-service teachers perceive Syrian asylum seekers' children as traumatized and helpless and need support of others. In addition, there is a category which qualifies Syrian asylum seekers' children as dangerous. Different from all other categories, only the 'Children' category underlines the equity of them with the other children.

**Keywords:** Asylum seekers' children, pre-service teachers, metaphorical perceptions

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<sup>i</sup> **Gamze Tezcan, Dr.**, Çanakkale Onsekiz Mart University, Education Faculty.

**Correspondence:** gamzesert@comu.edu.tr

## INTRODUCTION

A popular problem of the era is the forced migration. Migration can be defined as the transition of people from one region to another for a long, medium and high duration (Yalçın, 2004). The global movement of population because of the results of globalization can be handled as forced migration (Taylor & Sidhu, 2012). The results of globalization causing migrations change over time; for example, industrial revolution caused a migration from rural to urban. Nowadays, because of the wars have occurred in Middle East countries, forced migration became a very important and common issue for Turkey and all other European countries.

On April 29, 2011, 300-400 Syrian altogether moved toward Cilvegöz Border Gate and were accepted by Turkey (Republic of Turkey Ministry of Interior Directorate General of Migration Management [GMM], 2015). After then, migration to Turkey has continued and Turkey was placed at the top of the 'Major refugee-hosting countries' list (Organisation for Economic Co-operation and Development [OECD], 2015). According to the data of the year 2018, 3,597,738 Syrian is living in Turkey (GMM, 2018). They are under temporary protection in Turkey. Within the context of temporary protection, foreigners can benefit from medical services, education services for school age children and education centers for adults (GMM, 2016).

In Turkey by the year 2018, there were 19 temporary accommodation centers in which education and health services are provided; however, only the 4.4 % of the Syrian migrants live in that centers, the remain 95.6% live in the cities (GMM, 2018). In other words, Turkish people live together with Syrian migrants. Therefore, to prevent cultural conflicts and to make Syrian migrants independently active in society have become important issues for Turkey. At this point, education may be the main solution.

According to statistics, at the moment, there are 1,706,473 children, who are under 18 years old (GMM, 2018). That is, approximately 47% of the migrants is composed of children who need education. Nevertheless, it is much hard for these children to learn in a school away from their country and with peers and teachers from a different culture. PISA 2015 results showed that immigrant students performed below the baseline level compared with the non-immigrant peers (OECD, 2016) and also that their sense of alienation from schools is higher (OECD, 2017). In addition, Uzun and Bütün (2016) revealed that Syrian children have many problems in adaptation to school. While overcoming adaptation problems and ensuring equality in success, teachers are very essential and key elements. Participating in a supportive formal education improves self-esteem, social inclusion, and personal skills and develop effective employees (Block, Cross, Riggs & Gibbs, 2014).

How much teachers have positive perceptions toward multi-cultural education, how they consider Syrian asylum seekers' children and how much they approve them are really important for inclusion of these children to education. Pre-service teachers' perceptions about Syrian asylum seekers and about their children should be well understood. Their perceptions and the discourses that they used while explaining asylum seekers and their children may differentiate. Rutter (2006) states four discourses on asylum seekers and refugees:

1. Humanitarian discourses: They are helpless and traumatized and need others' support
2. Economic asset discourse: They are well-qualified individuals with valuable skills.
3. Cultural enrichment discourses: Their artists and musicians enrich our culture.
4. Hard-facts discourses, with a focus on rational arguments and analyzing statistical data on asylum (p.8)

Rather than using one of these discourses, it is expected from pre-service teachers internalize a holistic approach. A holistic approach means perceiving asylum seekers as in its context in the manner of humanistic, economic, cultural and rational aspects (Taylor & Sidhu, 2012).

By analyzing pre-service teachers' perceptions, in-service education should be improved according to their deficiencies or needs. Then, some courses about multi-cultural education and Syrian asylum seekers should be designed under the light of those findings and added to the pre-service teacher education programs; so that when they go to the classes they will be much helpful to those children.

Metaphors can be used as a way of understanding the perceptions of pre-service teachers. According to most people, metaphor is a device of the poetic imagination and a matter of words rather than thought or act; on the contrary, metaphors create people's conceptual system resulting in thought and action (Lakoff & Johnson, 1980). Metaphor analysis method is used in social sciences to explore how people perceive concept and cases by using metaphors which are the presentation of their cognitive images (Uzun & Özcan, 2017). There are studies investigating the metaphorical perceptions about Syrian asylum seekers (Kara, Yiğit & Ağırman, 2016; Uzun & Özcan, 2017); however, there is not any study searching the perceptions about Syrian asylum seekers' children. The aim of this study is to explore the metaphorical perceptions of pre-service teachers about Syrian asylum seekers' children. According to this main aim the following research questions were answered;

1. What are pre-service teachers' metaphors about Syrian asylum seekers' children?
2. What conceptual categories can be derived from the metaphors developed by pre-service teachers?
3. In each category, what is the distribution of pre-service teachers with respect to their department and grade?

## **METHOD**

### **Research Model/Design**

The study was conducted through a metaphor analysis method to explore the metaphorical perceptions of pre-service teachers about Syrian asylum seekers' children. Data was collected by a metaphor analysis form. Both qualitative analysis and quantitative analysis were done together. The data analysis process is explained in detail under 'Data Analysis' heading in the following.

### **Research Sample/ Participants**

Participants of the study were chosen according to convenience sampling method. Pre-service (pre-school, primary, middle school mathematics and science) teachers, who were studying at Çanakkale Onsekiz Mart University and who were voluntary, participated to the study. Totally 184 pre-service teacher participated to the study. However, the metaphors of 24 of them sorted because of some reasons which will be explained under 'Data Analysis'. The distribution of the remaining 160 participants according to their department and grade is given in Table 1.

**Table 1. The distribution of the participants according to their department and grade**

| Department            | 1 <sup>st</sup> Grade |        | 4 <sup>th</sup> Grade |        | Total |        |
|-----------------------|-----------------------|--------|-----------------------|--------|-------|--------|
|                       | N                     | %      | N                     | %      | N     | %      |
| Pre-School Education  | 19                    | 23.35  | 19                    | 25.33  | 38    | 23.75  |
| Primary Education     | 22                    | 25.88  | 23                    | 30.66  | 45    | 28.13  |
| Middle School         | 22                    | 25.88  | -                     | -      | 22    | 13.75  |
| Mathematics Education |                       |        |                       |        |       |        |
| Science Education     | 22                    | 25.88  | 33                    | 44.00  | 55    | 34.37  |
| Total                 | 85                    | 100.00 | 75                    | 100.00 | 160   | 100.00 |

As given in Table 1, the participants are the pre-service teachers from the departments of Pre-School Education (N=38), Primary Education (N=45), Middle School Mathematics Education (N=22) and Science Education (N=55). The 1<sup>st</sup> (N=85) and the 4<sup>th</sup> grade (N=75) students from these departments participated to the study. However, since it is a new department of the education faculty and it has not a 4<sup>th</sup> grade class yet, only the 1<sup>st</sup> grade students from the Middle School Mathematics Education Department participated to the study.

### Research Instrument and Procedure

Data was collected through a metaphor analysis form in the spring semester of 2017-2018 academic year. In this form, there is an information part which explains the aim of the study and gives a guarantee about that the data will be used only scientific reasons. In addition, there is a personal information part which asks their department and grade. Finally, there is an incomplete sentence: ‘*Syrian asylum seekers’ children are like.....; because.....*’. Participants were expected to fill these blanks in the sentence.

After a short description of the aim of the study, the forms were only given to the ones who voluntary to participate the study. Participants were given about 15 minutes to develop their metaphors and explain the reasons why s/he used this metaphor and the resemblance between Syrian asylum seekers and the metaphor.

### Data Analysis

During data analysis process, 5 stages; which were common with the other metaphor analysis studies (Saban, Koçbeker & Saban, 2006; Saban, 2009; Uzun & Erdem 2017) were followed. These five stages can be explained respectively as following:

1. *Labeling stage:* It is a stage at which the raw data is only labeled according to their metaphors. At this stage, if there was not any metaphor or it had only a description, the form was labeled as ‘no metaphor’ or ‘just description’.
2. *Sorting stage:* At this stage, the raw data was analyzed to eliminate the ones which has no metaphors or has one but no reasons about why this metaphor is chosen, the ones which are poorly structured and the ones which are meaningless. At this stage 24 metaphors were eliminated. There was not any form which has no a metaphor. Only one of them was containing a metaphor but no reason (*Syrian asylum seekers’ children are like heart breake; because.....*). Ten of them eliminated since they were considered as meaningless. As in the example of ‘*Syrian asylum seekers’ children are like ownerless soup; because aslike salting the soup served to you, it makes things to get worse instead of helping ...*’, any meaningful connection between the metaphor and the reason was not detected in these meaningless metaphors. Finally, thirteen of them were sorted; since they are poorly structured. For example, the metaphor of ‘*Syrian asylum seekers’ children are like the book with torn pages which was glued and then read; because it was very hard to construct a new life in a different place....*’ was considered as a

poorly structured metaphor, since the metaphor and the explanation were not match together. As another example, ‘*Syrian asylum seekers’ children are like starless dark sky; because there is not anything with which they can be happy....*’ was also sorted, as the reason does not completely explain the metaphor.

3. *Categorization stage:* After sorting stage, remain data was analyzed again and a list of metaphors was done. And then, according to their similarities in their reasons these metaphors were grouped into categories. This stage includes an inductive content analysis process. Through inductive content analysis, data that are similar to each other are brought together within the framework of specific concepts and themes and these are arranged in a way that the reader will easily understand (Yıldırım ve Şimşek, 2013).
4. *Establishing the inter-rater reliability rate stage:* At this stage, the list of metaphors and the categories were given 2 experts who have qualitative research experience and were not get involved in the previous stages of this study, and it was expected from them to grouped metaphors into these categories. After then, the formula of Reliability = Agreement / Agreement + Disagreement (Miles and Huberman, 1994) was calculated as .91. There are 15 metaphors that experts and the researcher disagreed on their category. An inter-rater reliability of 90% and above is accepted as enough for a qualitative study (Miles and Huberman, 1994).
5. *Analyzing the data quantitatively stage:* At this stage, the frequencies and percentages of participants who represent each metaphor and each category were calculated.

## FINDINGS

In this study, it is aimed to find out how the pre-service teachers perceive the Syrian asylum seekers’ children who may be their students in the near future. Under the scope of this aim three research questions were tried to be answered. The findings related to them are given below.

### The Findings Related to the First Research Question

While the question of ‘What are the metaphors developed by pre-service teachers?’ is tried to be answered, all the metaphors were written down and ordered according to their frequencies. Table 2 includes all of the metaphors developed by the pre-service teachers. Their frequencies and percentages are also contained by Table 2 below.

**Table 2. The metaphors developed by the participants**

| Code | Metaphor               | f  | %    | Code | Metaphor                    | f | %   |
|------|------------------------|----|------|------|-----------------------------|---|-----|
| 1.   | Flower                 | 14 | 8.75 | 51.  | Rundown building            | 1 | .62 |
| 2.   | Child                  | 12 | 7.50 | 52.  | Autumn                      | 1 | .62 |
| 3.   | Migratory birds        | 6  | 3.75 | 53.  | Candle                      | 1 | .62 |
| 4.   | Falling Star           | 5  | 3.13 | 54.  | Black sun                   | 1 | .62 |
| 5.   | Snowdrop               | 5  | 3.13 | 55.  | Moon                        | 1 | .62 |
| 6.   | Angel                  | 4  | 2.50 | 56.  | Alley cat                   | 1 | .62 |
| 7.   | Innocent               | 4  | 2.50 | 57.  | Bodiless soul               | 1 | .62 |
| 8.   | Bird                   | 3  | 1.88 | 58.  | Orphan                      | 1 | .62 |
| 9.   | Bird with broken wings | 3  | 1.88 | 59.  | Homeless nation             | 1 | .62 |
| 10.  | Kitty                  | 3  | 1.88 | 60.  | Fish in the desert          | 1 | .62 |
| 11.  | Star                   | 3  | 1.88 | 61.  | Man in the deserted island  | 1 | .62 |
| 12.  | Pain                   | 2  | 1.25 | 62.  | Kite without wind           | 1 | .62 |
| 13.  | Fledgling              | 2  | 1.25 | 63.  | Kite without rope           | 1 | .62 |
| 14.  | Innocence              | 2  | 1.25 | 64.  | Apple falling from the tree | 1 | .62 |
| 15.  | Plant                  | 2  | 1.25 | 65.  | Forlorn                     | 1 | .62 |
| 16.  | Water lily             | 2  | 1.25 | 66.  | Turtle without shell        | 1 | .62 |

|       |                           |   |      |     |                                   |     |     |
|-------|---------------------------|---|------|-----|-----------------------------------|-----|-----|
| 17.   | Dove                      | 2 | 1.25 | 67. | Rootless                          | 1   | .62 |
| 18.   | Gazelle                   | 2 | 1.25 | 68. | Snow                              | 1   | .62 |
| 19.   | Fish out of water         | 2 | 1.25 | 69. | Bamboo                            | 1   | .62 |
| 20.   | National Security Problem | 2 | 1.25 | 70. | Play dough                        | 1   | .62 |
| 21.   | Balloon                   | 2 | 1.25 | 71. | Diamond                           | 1   | .62 |
| 22.   | Scary Bird                | 1 | .62  | 72. | Emoji                             | 1   | .62 |
| 23.   | Injured bird              | 1 | .62  | 73. | Diary                             | 1   | .62 |
| 24.   | Bird without wings        | 1 | .62  | 74. | Blank note book                   | 1   | .62 |
| 25.   | Dry leaves                | 1 | .62  | 75. | Mud                               | 1   | .62 |
| 26.   | Daisy leaves              | 1 | .62  | 76. | Soil                              | 1   | .62 |
| 27.   | Pollen                    | 1 | .62  | 77. | Door                              | 1   | .62 |
| 28.   | Seed                      | 1 | .62  | 78. | The tree that has been cut        | 1   | .62 |
| 29.   | Sand                      | 1 | .62  | 79. | Broken glass                      | 1   | .62 |
| 30.   | Stones in the river bed   | 1 | .62  | 80. | Melancholic                       | 1   | .62 |
| 31.   | Leaf                      | 1 | .62  | 81. | Seedling without bloom            | 1   | .62 |
| 32.   | Cactus                    | 1 | .62  | 82. | Sadness                           | 1   | .62 |
| 33.   | Faded flower              | 1 | .62  | 83. | Human                             | 1   | .62 |
| 34.   | Invader                   | 1 | .62  | 84. | Pen without ink                   | 1   | .62 |
| 35.   | Snowball                  | 1 | .62  | 85. | Impossibility                     | 1   | .62 |
| 36.   | Sapling                   | 1 | .62  | 86. | Sunless flower                    | 1   | .62 |
| 37.   | Phoenix                   | 1 | .62  | 87. | Chair                             | 1   | .62 |
| 38.   | Water                     | 1 | .62  | 88. | Grass under the feet of elephants | 1   | .62 |
| 39.   | Hope                      | 1 | .62  | 89. | Football ball                     | 1   | .62 |
| 40.   | Sheep                     | 1 | .62  | 90. | Land                              | 1   | .62 |
| 41.   | Chick                     | 1 | .62  | 91. | Caged bird                        | 1   | .62 |
| 42.   | Cotton                    | 1 | .62  | 92. | Seedling                          | 1   | .62 |
| 43.   | Raw mine                  | 1 | .62  | 93. | Adopted child                     | 1   | .62 |
| 44.   | Valuable garbage          | 1 | .62  | 94. | Poor                              | 1   | .62 |
| 45.   | Mussel                    | 1 | .62  | 95. | Exchange                          | 1   | .62 |
| 46.   | Baby                      | 1 | .62  | 96. | Leech                             | 1   | .62 |
| 47.   | Lonely elder              | 1 | .62  | 97. | Infectious                        | 1   | .62 |
| 48.   | Unplanned birth           | 1 | .62  | 98. | Stork                             | 1   | .62 |
| 49.   | Winter                    | 1 | .62  | 99. | Blameless                         | 1   | .62 |
| 50.   | Falling leaves            | 1 | .62  |     |                                   |     |     |
| TOTAL |                           |   |      |     |                                   | 160 | 100 |

As it is seen from Table 2, pre-service teachers developed 99 different metaphors. The most frequent one from them is 'Flower' (f=14, 8.75%). The metaphor of 'Child' (f=12, 7.50) comes then. They are followed by the metaphor of 'Migratory Bird'; however 'Migratory Bird' metaphor has a frequency (f=6, 3.75%) which is nearly half of the frequencies of the 'Flower' and 'Child' metaphors. It is followed by the metaphors of 'Falling Star' (f=5, 3.13%) and 'Snowdrop' (f=5, 3.13%). After the 21<sup>st</sup> metaphor (Balloon) whose frequency is 2 (1.25%), other 78 metaphors were developed by only 1 participant. In another words, nearly %79 of the metaphors has the frequency of 1 (.62%).

### The Findings Related to the Second Research Question

The second research question is related to the categories can be derived from the metaphors developed by the pre-service teachers. While categorizing the metaphors the reasons were taken into account. Therefore it was possible for a metaphor fell under different categories; if it was based on different reasons. For example, the most frequent metaphor of 'Flower' fell under 4 different categories. By the way, 13 categories were derived from the metaphors. Table 3 contains these categories and their frequencies.

**Table 3. The categories derived from the metaphors**

|     | Category                     | f   | %     |
|-----|------------------------------|-----|-------|
| 1.  | Far from home                | 33  | 20.63 |
| 2.  | Care –seeking                | 28  | 17.50 |
| 3.  | Innocent                     | 19  | 11.88 |
| 4.  | Children                     | 13  | 8.12  |
| 5.  | Immigrants forced to migrate | 9   | 5.62  |
| 6.  | Winnowed                     | 9   | 5.62  |
| 7.  | Survivor                     | 9   | 5.62  |
| 8.  | Excluded                     | 8   | 5.00  |
| 9.  | Discoverable                 | 7   | 4.38  |
| 10. | Sufferer                     | 7   | 4.38  |
| 11. | Can be shaped                | 6   | 3.75  |
| 12. | Defenseless                  | 6   | 3.75  |
| 13. | Dangerous for society        | 6   | 3.75  |
|     | TOTAL                        | 160 | 100   |

Given in Table 3, there are 13 categories. The most frequent category is the ‘Far from home’ under which 20.63% of the pre-service teachers’ metaphors (f=33) fell. It is followed by ‘Care-seeking’ (17.50%, f=28) and ‘Innocent’ (11.88%, f=19) categories. The least frequent categories are ‘Can be shaped’, ‘Defenseless’ and ‘Dangerous for Society’. Under each of them, 3.75% of the pre-service teachers’ metaphors (f=6) fell. The category of ‘Dangerous for society’ is the only conceptual category which has a negative meaning. That is, the only category containing negative metaphors is the one of the least frequent categories and only the 3.75% of pre-service teachers consider Syrian asylum seekers’ children negatively. The other all 12 categories have positive meanings and contain the sense of mercy. Later in this section, the all categories and the metaphors under them will be given. Table 4 includes the metaphors and their frequencies ‘Far from home’ category.

**Table 4. The metaphors related to the ‘Far from home’ category**

| Category      | Subcategory                               | Metaphors                      | f  | %     |
|---------------|---|--------------------------------|----|-------|
| Far from home | Being away from their natural environment | 1. Falling star                | 4  | 12.12 |
|               |   | 2. Flower                      | 3  | 9.09  |
|               |   | 3. Fish out of water           | 2  | 6.06  |
|               |   | 4. Water lily                  | 2  | 6.06  |
|               |   | 5. Fish in the desert          | 1  | 3.03  |
|               |   | 6. Apple falling from the tree | 1  | 3.03  |
|               |   | 7. Caged bird                  | 1  | 3.03  |
|               |   | 8. Daisy leaves                | 1  | 3.03  |
|               |   | 9. Man in the deserted island  | 1  | 3.03  |
|               |   | 10. Plant                      | 1  | 3.03  |
|               |   | 11. Snow                       | 1  | 3.03  |
|               |   | TOTAL                          | 18 | 54.54 |
|               | Lacking of something when far from home   | 12. Bird with broken wings     | 2  | 6.06  |
|               |   | 13. Bodiless soul              | 1  | 3.03  |
|               |   | 14. Forlorn                    | 1  | 3.03  |
|               |   | 15. Kite without wind          | 1  | 3.03  |
|               |   | 16. Kite without rope          | 1  | 3.03  |
|               |   | 17. Orphan                     | 1  | 3.03  |
|               |   | 18. Rootless                   | 1  | 3.03  |
|               |   | 19. Turtle without shell       | 1  | 3.03  |
|               |   | TOTAL                          | 9  | 27.27 |
|               | Homeless                                  | 20. Migratory Birds            | 4  | 12.12 |

|                     |    |       |
|---------------------|----|-------|
| 21. Alley cat       | 1  | 3.03  |
| 22. Homeless nation | 1  | 3.03  |
| TOTAL               | 6  | 18.18 |
| TOTAL               | 33 | 100   |

According to Table 4, there are 22 different metaphors under 'Far from home' category. When these metaphors analyzed in detail, it was detected that they could be also grouped into 3 sub categories. The first and the most frequent (f=18) one of these subcategories is the 'Being away from their natural environment' subcategory. The almost half (54.54%) of the 'Far from home' category's metaphors falls under this subcategory. There are 11 different metaphors under this subcategory: 'Falling star' (f=4, 12.12%), 'Flower' (f=3, 9.09%), 'Fish out of water' (f=2; 6.06%), 'Water lilly' (f=2; 6.06%), 'Fish in the desert' (f=1, 3.03%), 'Apple falling from the tree' (f=1, 3.03%), 'Caged bird' (f=1, 3.03%), 'Daisy leaves' (f=1, 3.03%), 'Man in the deserted island' (f=1, 3.03%), 'Plant' (f=1, 3.03%), 'Snow' (f=1, 3.03%). They all consider Syrian asylum seekers' children the ones away from the place where they naturally belong to/ away from their habitats. As examples;

*Syrian asylum seekers' children are like a **falling star**; because like a falling star disappears in the space, they also disappear away from the place they live in. (Primary Ed., 4<sup>th</sup> grade)*

*Syrian asylum seekers' children are like a **falling star**; because they are still shining but they just about die away; since they are away from their sun. (Pre-school Ed. 4<sup>th</sup> grade)*

*Syrian asylum seekers' children are like a flower, it is away from its own land...They think that if they did not get used to this land, they would die. (Middle School Mathematics Ed., 1<sup>st</sup> grade)*

*Syrian asylum seekers' children are like an **apple falling from the tree**; because they have to be falling back rather than starting again from the first stage, since they are away from the home. (Middle School Mathematics Ed., 1<sup>st</sup> grade)*

*Syrian asylum seekers' children are like a **fish out of water**; because their tiny heart was taken away from their lives, from the places where they live and used to. (Science Education, 4<sup>th</sup> grade)*

*Syrian asylum seekers' children are like a **water lily**; because the children separated from their society are like a water lily rooted up. (Pre-school Ed. 4<sup>th</sup> grade)*

As it is seen from the examples above, the pre-service teachers state that being far away from home resembles to being apart from the natural environment. Like a falling star; like an apple falling from its tree and like a fish out of water, they are far away from their natural environments/habitats and this makes them hurt. The pre-service primary and pre-school teachers state that being away from their home (sun), makes them disappear/die like a falling star. In other words, they both believe that Syrian asylum seekers' children are disappearing as they are away from home. In addition, the pre-service mathematics and science teachers put forward that as like a flower dying away from its l or as like an apple losing its freshness when it is plucked from the tree or as like a fish losing its live, when it is out of the water; they also suffer from being apart from their natural environment. Moreover, the pre-service pre-school teacher stated that as a water lily which was rooted up, they are separated from their habitats/from their society. To sum up, all of the metaphors under this subcategory, like the examples given above, underline that Syrian asylum seekers' children get harm at far from home.

The second subcategory is 'Lacking of something when far from home'. This subcategory contains 8 different metaphors (f=9, 27.27%). These metaphors generally state that being far from home makes Syrian asylum seekers' children lack of some important things as like a 'Bird with broken wings' (f=2, 6.06%) or a 'Bodiless soul' (f=1, 3.03%) or a 'Forlorn' (f=1, 3.03%) or a 'Kite without

wind' (f=1, 3.03%) or 'Kite without a rope' (f=1, 3.03%) or a 'Orphan' (f=13.03%) or a 'Rootless' (f=1, 3.03%) or a 'Turtle without a shell' (f=1, 3.03%). A few example of this subcategory is given above,

*Syrian asylum seekers' children are like a **bird with broken wings**; because their freedom was taken from their hands. (Primary Ed., 1<sup>st</sup> grade)*

*Syrian asylum seekers' children are like a **bodiless soul**; because even his/her parent is near them, grooving up away from the home results in grooving up without a purpose and without dreams for a child. (Primary Ed., 1<sup>st</sup> grade)*

The examples show that being far from home restricts them as like they lack of some vital thing. According to the examples given above, one pre-service primary teacher expressed that like a bird with a broken wing which cannot fly freely; they are not also free when they are away from the home. Another one resembled being far away from home to being a bodiless soul which does not have a purpose or a dream in life.

The third subcategory is 'Homeless' (f=6; 18.18%). 'Migratory bird' (f=4, 12.12%), 'Alley cat' (f=1, 3.03) and 'Homeless nation' (f=1,3.03) are the metaphors under this subcategory. A few examples of it are given below:

*Syrian asylum seekers' children are like a **migratory bird**; because they leave their country and want a home. (Science Ed., 4<sup>th</sup> grade)*

*Syrian asylum seekers' children are like an **alley cat**; because they have no place to refuge. (Pre-school Ed., 1<sup>st</sup> grade)*

*Syrian asylum seekers' children are like a **homeless nation**; because, non-nationals are forced to suffer. (Primary Ed., 1<sup>st</sup> grade)*

As it is understood from the examples; pre-service teachers interpret being far away from their country and nation as having no place, like home, to refuge. In other words, they consider country and nation as a home which is a place that we feel at safe.

The second category is the 'Care-seeking' category. There are 19 different metaphors under this category. These metaphors are given in Table 5.

**Table 5. The metaphors related to the 'Care-seeking' category**

| Category     | Metaphors            | f | %     |
|--------------|----------------------|---|-------|
| Care-Seeking | 1. Flower            | 8 | 28.57 |
|              | 2. Kitty             | 3 | 10.71 |
|              | 3. Bird              | 1 | 3.57  |
|              | 4. Baby              | 1 | 3.57  |
|              | 5. Lonely elder      | 1 | 3.57  |
|              | 6. Plant             | 1 | 3.57  |
|              | 7. Land              | 1 | 3.57  |
|              | 8. Seedling          | 1 | 3.57  |
|              | 9. Adopted child     | 1 | 3.57  |
|              | 10. Poor             | 1 | 3.57  |
|              | 11. Faded flower     | 1 | 3.57  |
|              | 12. Rundown building | 1 | 3.57  |
|              | 13. Autumn           | 1 | 3.57  |
|              | 14. Candle           | 1 | 3.57  |
|              | 15. Black sun        | 1 | 3.57  |
|              | 16. Soil             | 1 | 3.57  |

|                            |    |      |
|----------------------------|----|------|
| 17. Bird with broken wings | 1  | 3.57 |
| 18. Bird without wings     | 1  | 3.57 |
| 19. Moon                   | 1  | 3.57 |
| TOTAL                      | 28 | 100  |

According to the Table 5, the most frequent metaphor is 'Flower' (f=8, 28.57%) under 'Care-seeking' category. It is followed by 'Kitty' (f=3, 10.71 %). Each of all other metaphors under this category s developed only 1 pre-service teacher (3.57 %). Those are 'Bird', 'Baby', 'Lonely Elder', 'Plant', 'Land', 'Seedling', 'Adopted child', 'Poor', 'Faded flower', 'Rundown building', 'Autumn', 'Candle', 'Black sun', 'Soil', 'Bird with broken wings', 'Bird without wings' and 'Moon'. As it is seen some of the metaphors already evoke the meaning of needing help or care; such as 'Flower', 'Kitty', 'Baby', 'Lonely elder', etc. However, such as 'Autumn', 'Moon', 'Candle' do not evoke such a meaning; but their reasons do. Some examples are;

*Syrian asylum seekers' children are like a **flower**; because if we take care of them and give water, they live and grove up by rooted to the land. (Primary Ed., 4<sup>th</sup> grade)*

*Syrian asylum seekers' children are like a **kitty**; because they need care and love. (Pre-school Ed. 1<sup>st</sup> grade)*

*Syrian asylum seekers' children are like a **adopted child**; because, even s/he is not our own child,..... we should take her/his responsibility. (Science Ed., 4<sup>th</sup> grade).*

*Syrian asylum seekers' children are like a **autumn**; because a leaf drops every single day from their lives....our mission is to make them turn to green again by caring with. We can make them live the summer again. (Middle School Mathematics Ed., 1<sup>st</sup> grade)*

*Syrian asylum seekers' children are like a **moon**; because they lost their own lights and with a hand they will shine again. (Science Ed., 4<sup>th</sup> grade)*

The third category is 'Innocent' category. The metaphors under this category imply that Syrian asylum seekers' children are innocent; they are not related to the war. This category involves 11 metaphors given in Table 6.

**Table 6. The metaphors related to the 'Innocent' category**

| Category | Metaphors     | f  | %     |
|----------|---------------|----|-------|
| Innocent | 1. Angel      | 4  | 21.05 |
|          | 2. Innocent   | 4  | 21.05 |
|          | 3. Innocence  | 2  | 10.53 |
|          | 4. Dove       | 2  | 10.53 |
|          | 5. Hope       | 1  | 5.26  |
|          | 6. Sheep      | 1  | 5.26  |
|          | 7. Chick      | 1  | 5.26  |
|          | 8. Cotton     | 1  | 5.26  |
|          | 9. Bird       | 1  | 5.26  |
|          | 10. Blameless | 1  | 5.26  |
|          | 11. Water     | 1  | 5.26  |
|          | TOTAL         | 19 | 100   |

As it is seen from the Table 6, there are metaphors which are directly means innocence: 'Innocent' (f=4, 21.05%), 'Innocense' (f=2, 10.53 %) and 'Blameless' (f=1, 5.26%). The others are something which associates with innocence: 'Angel' (f=4, 21.05%), 'Dove' (f=2, 10.53 %), 'Hope'

(f=1, 5.26%), ‘Sheep’ (f=1, 5.26%) , ‘Chick’ (f=1, 5.26%) , ‘Cotton’ (f=1, 5.26%), ‘Bird’ (f=1, 5.26%) and ‘Water’ (f=1, 5.26%). Examples are given in the following;

*Syrian asylum seekers’ children are like an **innocent**; because...the war of adults makes them unable to live their childhood. (Science Ed., 4<sup>th</sup> grade)*

*Syrian asylum seekers’ children are like **innocence**; because they do not have any crime. (Science Ed., 4<sup>th</sup> grade)*

*Syrian asylum seekers’ children are like an **angel**; because, despite of all the difficulties, they are still smiling and look to the life in a positive side. (Science Ed., 4<sup>th</sup> grade)*

*Syrian asylum seekers’ children are like a **dove**, because, they live like a dove without knowing anything.(Pre-school Ed., 1<sup>st</sup> grade)*

The other category is the ‘Children’ category. The metaphors belonging to this category state that Syrian Asylum seekers’ children are only children. They are not any difference from the other children and so other humans. The metaphors and their frequencies under this category is given in Table 7.

**Table 7. The metaphors related to the ‘Children’ category**

| Category | Metaphors | f  | %     |
|----------|-----------|----|-------|
| Children | 1. Child  | 12 | 92.31 |
|          | 2. Human  | 1  | 7.69  |
|          | TOTAL     | 13 | 100   |

As it is given in Table 7, there are 2 metaphors; ‘Child’ (f=12, 92.31) and ‘Human’ (f=1, 7.69%). Only one pre-service teacher develops the metaphor of ‘Human’:

*Syrian asylum seekers’ children are like a **human**; because as like other humans, they also have the rights of living like a human being and freely. (Science Ed., 4<sup>th</sup> grade)*

As it is seen, the pre-service teacher emphasize that they are equal to the other people and they should have all the rights that other people have. The ‘child’ metaphors also have the same reason:

*Syrian asylum seekers’ children are like a **child**; because although they cannot live their childhood; they are still children according to me. (Pre-School Ed., 1<sup>st</sup> grade)*

*Syrian asylum seekers’ children are like a **child**; because ....they are like other children. They do not have an evil inside them. They are naive and good. (Pre-School Ed., 1<sup>st</sup> grade)*

*Syrian asylum seekers’ children are like a **child**; because any discrimination should not be made. At last, they are also children. No matter what their nationality is. (Middle School Mathematics Ed., 1<sup>st</sup> grade)*

*Syrian asylum seekers’ children are like a **child**; because a child is only a child independent from its religion, nationality, language. (Science Ed., 4<sup>th</sup> grade)*

According to the given examples, the pre-service teachers developing ‘child’ metaphor believe that children are like children in everywhere on the world. Their nationality or religion does not affect the goodness which is inside of every child. Therefore, they do not need any other metaphor to represent the Syrian asylum seekers’ children rather than ‘child’.

The category of ‘Immigrants Forced to Migrate’ is another category. It has 7 different metaphors which consider Syrian asylum seekers’ children not only migrants but also the ones who forced to leave their country and migrate. Table 8 contains the metaphors under this category.

**Table 8. The metaphors related to the ‘Immigrants Forced to Migrate’ category**

| Category                     | Metaphors          | f | %     |
|------------------------------|--------------------|---|-------|
| Immigrants forced to migrate | 1. Migratory birds | 2 | 22.22 |
|                              | 2. Flower          | 2 | 22.22 |
|                              | 3. Leaf            | 1 | 11.11 |
|                              | 4. Seed            | 1 | 11.11 |
|                              | 5. Exchange        | 1 | 11.11 |
|                              | 6. Injured bird    | 1 | 11.11 |
|                              | 7. Stork           | 1 | 11.11 |
| TOTAL                        |                    | 9 | 100   |

As given in Table 8, ‘Migratory birds’ and ‘Flower’ metaphors were developed by 2 pre-service teacher (22.22%); while the other metaphors ‘Leaf’, ‘Seed’, ‘Exchange’, ‘Injured bird’ and ‘Stork’ have the frequency of 1 (11.11%). Some examples of these metaphors are given below;

*Syrian asylum seekers’ children are like **migratory birds**; because they had to leave their home, their country. (Primary Ed., 1<sup>st</sup> grade).*

*Syrian asylum seekers’ children are like a **flower**; because they were also picked from their country (may be from their family) like a flower picked. (Pre-school Ed. 4<sup>th</sup> grade)*

*Syrian asylum seekers’ children are like a **seed**; because seeds are all together until someone come and buy it. And then, they need to be live in a strange environment. (Primary Ed., 4<sup>th</sup> grade).*

The examples shows that pre-service teachers see Syrian asylum seekers children as the immigrant made to leave their country and live in a foreign one outside the will.

Although some pre-service teachers believe that they are immigrants forced to migrate, some others believe they are winnowed also in adults’ world. The metaphors under this category are different from the ones under ‘Immigrant forced to migrate’ since they state that these children are not belonging to any place. The metaphors of this category are given in Table 9.

**Table 9. The metaphors related to the ‘Winnowed’ category**

| Category | Metaphors                  | f | %     |
|----------|----------------------------|---|-------|
| Winnowed | 1. Balloon                 | 2 | 22.22 |
|          | 2. Dry leaves              | 1 | 11.11 |
|          | 3. Bird                    | 1 | 11.11 |
|          | 4. Falling leaf            | 1 | 11.11 |
|          | 5. Snowball                | 1 | 11.11 |
|          | 6. Sand                    | 1 | 11.11 |
|          | 7. Stones in the river bed | 1 | 11.11 |
|          | 8. Pollen                  | 1 | 11.11 |
| TOTAL    |                            | 9 | 100   |

There are 8 different metaphors: ‘Balloon’ (f=2, 22.22%), ‘Dry leaves’ (f=1, 11.11%), ‘Bird’ (f=1, 11.11%), ‘Falling leaf’ (f=1, 11.11%), ‘Snowball’ (f=1, 11.11%), ‘Sand’ (f=1, 11.11%), ‘Stones in the river bed’ (f=1, 11.11%) and ‘Pollen’ (f=1, 11.11%). A few examples are given in the below;

*Syrian asylum seekers’ children are like a **balloon**; because balloons are winnowed under the control of wind. As like Syrian asylum seekers’ children are also winnowed by the pressures of governments and the war. (Pre-school Ed. 1<sup>st</sup> grade)*

*Syrian asylum seekers’ children are like a **falling leaf**; because they lost their families. While they are educated in their schools with their friends, they were all winnowed separately to different places. (Middle School Mathematics Ed., 1<sup>st</sup> grade)*

*Syrian asylum seekers’ children are like a **pollen**; because they are winnowed from one place to another. They do not have a place to live. (Primary Ed. 1<sup>st</sup> grade)*

As it is discovered from the metaphors above the pre-service teachers developed these metaphors believe that Syrian asylum seekers children unconsciously separated from their country and they do not have any place that they belong to; therefore, they are winnowed by outsiders such as governments, such as the effects of the war.

The other category is ‘Survivor’ category. The metaphors under this category evaluate Syrian asylum seekers children as survivors; since they survive in a foreign country despite of all bad events that they live. The metaphors are given in Table 10.

**Table 10. The metaphors related to the ‘Survivor’ category**

| Category | Metaphors   | f | %     |
|----------|-------------|---|-------|
| Survivor | 1. Snowdrop | 5 | 62.50 |
|          | 2. Cactus   | 1 | 12.50 |
|          | 3. Phoenix  | 1 | 12.50 |
|          | 4. Sapling  | 1 | 12.50 |
|          | 5. Winter   | 1 | 12.50 |
| TOTAL    |             | 9 | 100   |

There are 5 metaphors under ‘Survivor’ category. As given in Table10, the most frequent one is ‘Snowdrop’ (f=5, 62.15%). The each of the other 4 metaphors (Cactus, Phoenix, Sapling, Winter) was developed 1 pre-service teacher (12.50 %) each has some different strengths described in the reason part. For example;

*Syrian asylum seekers’ children are like a **snowdrop**; because snowdrops live in extreme conditions and also blossom. (Middle School Mathematics Ed., 1<sup>st</sup> grade)*

*Syrian asylum seekers’ children are like a **snowdrop**; because all of the ugliness of the environment that they live, they still conserve the beauty inside their soul. (Pre-school Ed. 1<sup>st</sup> grade)*

*Syrian asylum seekers’ children are like a **phoenix**; because according to mythology phoenix gets fired to born again from its ashes and returns to life again. (Pre-school Ed. 4<sup>th</sup> grade)*

*Syrian asylum seekers’ children are like a **sapling**; because they try to survive despite of hard conditions; I draw parallel between them. (Middle School Mathematics Ed., 1<sup>st</sup> grade)*

As understood from the examples above, pre-service teachers developing metaphors under this category appreciate Syrian asylum seekers' children; since they are strongly resist to all the bad things and continue to live. According to them, like a snowdrop blossoming under snow, they survive and conserve their beauty inside. Like a phoenix, they try to born again from their past's ashes. Like a sapling they try to grove up.

Another category is 'Excluded' category. The metaphors consider the Syrian asylum seekers' children as the ones excluded. There are 8 different metaphors under this category. These are given in Table 11.

**Table 11. The metaphors related to the 'Excluded' category**

| Category | Metaphors                                | f | %     |
|----------|--|---|-------|
| Excluded | 1. Door                                  | 1 | 12.50 |
|          | 2. Pen without ink                       | 1 | 12.50 |
|          | 3. Impossibility                         | 1 | 12.50 |
|          | 4. Sunless flower                        | 1 | 12.50 |
|          | 5. Chair                                 | 1 | 12.50 |
|          | 6. Grass under the feet of the elephants | 1 | 12.50 |
|          | 7. Falling star                          | 1 | 12.50 |
|          | 8. Football ball                         | 1 | 12.50 |
| TOTAL    |  | 8 | 100   |

Table 11 shows that all the metaphors under this category is developed by one pre-service teacher (f=1, 12.50%). These are, 'Door', 'Pen without ink', 'Impossibility', 'Sunless flower', 'Chair', 'Grass under the feet of elephants', 'Falling star' and 'Football ball'. There are given some examples;

*Syrian asylum seekers' children are like a **door**; because they are always the outsiders as like the door opening outside. (Science Ed., 1<sup>st</sup> grade)*

*Syrian asylum seekers' children are like a **chair**; because we crush them by getting over them. We have a drive to despise and to underestimate them; therefore we do not make them feel precious. (Pre-school Ed. 1<sup>st</sup> grade)*

*Syrian asylum seekers' children are like **grass under the feet of the elephants**; everyone (elephants), whether they have the right to speak or not, speaks, discuss and decide about them and may be label them. The grasses are their life, their future. No matter who they are and who is guilty, who is not, they, innocents, should grow up like a child and should be happy to follow their dreams without being excluded. (Science Ed., 4<sup>th</sup> grade)*

As it is understood from the examples, the pre-service teachers developed metaphors under this category think that Syrian asylum seekers' children are excluded; however, the extra explanations of some of them show that they do not approve this situation.

The 'Discoverable' category has the metaphors which state that Syrian asylum seekers' children are the ones whose hidden specialties are need to be discovered. There are 5 different metaphors. Table 12 contains these metaphors.

**Table 12. The metaphors related to the 'Discoverable' category**

| Category     | Metaphors           | f | %     |
|--------------|---------------------|---|-------|
| Discoverable | 1. Star             | 3 | 42.86 |
|              | 2. Raw mine         | 1 | 14.29 |
|              | 3. Valuable garbage | 1 | 14.29 |
|              | 4. Mussel           | 1 | 14.29 |

|            |   |       |
|------------|---|-------|
| 5. Diamond | 1 | 14.29 |
| TOTAL      | 7 | 100   |

Table 12 shows that the most frequent metaphor is ‘Star’ (f=3, 42.86%). Half of the pre-service teachers developing metaphors under ‘Discoverable’ category consider Syrian asylum seekers’ children as stars. The other metaphors are ‘Raw mine’, ‘Valuable garbage’, ‘Mussel’ and ‘Diamond’ have the same frequency (f=1, 14.29%). Examples of this category:

*Syrian asylum seekers’ children are like a **star**; because they need to be discovered otherwise they will disappear. (Primary Ed., 1<sup>st</sup> grade )*

*Syrian asylum seekers’ children are like a **valuable garbage**; because, without knowing that they are original, they are regarded as fake and thrown to the bin. (Primary Ed., 1<sup>st</sup> grade )*

*Syrian asylum seekers’ children are like a **diamond**; since like diamond made from coal, Syrian asylum seekers’ children have come from a war and if they are processed by education, they can be noticed by not only experts but also everyone. (Pre-school Ed., 4<sup>th</sup> grade)*

It can be understood from the examples that the pre-service teachers believe that the Syrian asylum seekers’ children should be discovered by finding their hidden special aspects and should be processed by education. They also state that if they are not discovered, they will be disappeared/be thrown to bin/not be noticed.

There are pre-service teachers who develop metaphors that relate Syrian asylum seekers’ children to sufferers. According to them, these children are suffering. The metaphors under ‘Sufferer’ category are given in Table 13.

**Table 13. The metaphors related to the ‘Sufferer’ category**

| Category | Metaphors                     | f | %     |
|----------|-------------------------------|---|-------|
| Sufferer | 1. Pain                       | 2 | 28.57 |
|          | 2. The tree that has been cut | 1 | 14.29 |
|          | 3. Broken glass               | 1 | 14.29 |
|          | 4. Melancholic                | 1 | 14.29 |
|          | 5. Seedling without bloom     | 1 | 14.29 |
|          | 6. Sadness                    | 1 | 14.29 |
|          | TOTAL                         | 7 | 100   |

According to the Table 13, the 6 metaphors under this category is ‘Pain’ (f=2, 28.57%), ‘The tree that has been cut’ (f=1, 14.29%), ‘Broken glass’ (f=1, 14.29%), ‘Melancholic’ (f=1, 14.29%), ‘Seedling without bloom’ (f=1, 14.29%), and ‘Sadness’ (f=1, 14.29%). As examples to these metaphors are:

*Syrian asylum seekers’ children are like **pain**; because they harbor unusual pain in their eyes, this pain cover all of their face. (Primary Ed., 4<sup>th</sup> grade )*

*Syrian asylum seekers’ children are like **seedling without bloom**; because their childhood was taken their hands. They required to refuge to a foreign country when they need to play their toys.....Nowadays their education rights is given to them; whether it stop their pain or not. (Science Ed., 1<sup>st</sup> grade)*

As understood from the examples, the pre-service teacher think that these children are suffering.

Another category is ‘Can be shaped’. There are 6 metaphors each of which developed by one pre-service teacher under the category. Table 14 includes these metaphors.

**Table 14. The metaphors related to the ‘Can be shaped’ category**

| Category      | Metaphors          | f        | %          |
|---------------|--------------------|----------|------------|
| Can be shaped | 1. Play dough      | 1        | 16.67      |
|               | 2. Bamboo          | 1        | 16.67      |
|               | 3. Emoji           | 1        | 16.67      |
|               | 4. Dairy           | 1        | 16.67      |
|               | 5. Blank note book | 1        | 16.67      |
|               | 6. Mud             | 1        | 16.67      |
|               | <b>TOTAL</b>       | <b>6</b> | <b>100</b> |

The metaphors are ‘Play dough’, ‘Bamboo’, ‘Emoji’, ‘Dairy’, ‘Blank notebook’, and ‘Mud. A few ones of these metaphors are:

*Syrian asylum seekers’ children are like a **bamboo**; because when they prick in any land they can put forth roots. (Sicence Ed., 1<sup>st</sup> grade)*

*Syrian asylum seekers’ children are like a **blank notebook**; because they have just born, unaware of anything, blank and innocent. How we fill it; colorfully or dark....(Sicence Ed., 4<sup>th</sup> grade)*

*Syrian asylum seekers’ children are like **mud**; because if we want we can shape them and make them beneficial to society; but if we do not want they stay as mud and contaminate to our shoes. (Primary Ed., 4th grade)*

Examples show that pre-service teachers believe that attitudes and behaviors of Turkish people will shape Syrian asylum seekers’ children. According to them, Turkish people can make them happy in the society and can make them beneficial for society or vice versa; can make them unhappy and hazardous people. That is; they believe they can be shaped by the society that they live in.

The Defenseless category has the metaphors of some living things which cannot defense themselves strongly; such as ‘Fledgling’, ‘Gazelle’, ‘Scary bird’ and ‘Flower’. These metaphors consider Syrian asylum seekers’ children are unprotected. Table 15 contains the frequencies and percentages of the metaphors.

**Table 15. The metaphors related to the ‘Defenseless’ category**

| Category    | Metaphors    | f        | %          |
|-------------|--------------|----------|------------|
| Defenseless | 1.Fledgling  | 2        | 33.33      |
|             | 2.Gazelle    | 2        | 33.33      |
|             | 3.Scary bird | 1        | 16.67      |
|             | 4.Flower     | 1        | 16.67      |
|             | <b>TOTAL</b> | <b>6</b> | <b>100</b> |

According to the Table 15, ‘Fledgling’ and ‘Gazelle’ have the frequencies of 2 and compose of the 33.33% of the metaphors under this category. ‘Scary bird’ and ‘Flower’ has the frequency of 1 (16.67%). Examples of these metaphors are:

*Syrian asylum seekers’ children are like a **fledgling**; because these are the defenseless children being away from their nest, their family. (Sicence Ed., 4th grade)*

*Syrian asylum seekers' children are like a **gazelle** which was attacked by jackals, on the brink of extinction and defenseless; because its parents who can defense themselves better were caught first; since they were bigger and had much meat...(Primary Ed, 1<sup>st</sup> grade).*

The last category is 'Dangerous for Society' category. This category is the only one which has metaphors having negative meanings and considering Syrian asylum seekers dangerous. Table 16 includes these metaphors.

**Table 16. The metaphors related to the 'Dangerous for Society' category**

| Category              | Metaphors                    | f | %     |
|-----------------------|------------------------------|---|-------|
| Dangerous for society | 1. National security problem | 2 | 33.33 |
|                       | 2. Infectious                | 1 | 16.67 |
|                       | 3. Unplanned birth           | 1 | 16.67 |
|                       | 4. Invader                   | 1 | 16.67 |
|                       | 5. Leech                     | 1 | 16.67 |
|                       | TOTAL                        | 6 | 100   |

According to the Table 16, there are 5 different metaphors under this category. These are 'National security problem' (f=2, %33.33), 'Infectious' (f=1, 16.67%), 'Unplanned birth' (f=1, 16.67%), 'Invader' (f=1, 16.67%), 'Leech' (f=1, 16.67%). There are examples given below:

*Syrian asylum seekers' children are like a **national security problem**; because they can create a danger for society.(Primary Ed., 4<sup>th</sup> grade)*

*Syrian asylum seekers' children are like an **infectious**; because people hesitate to come closer to them. Some Syrian caused some problems in our country. Therefore we have a prejudice to them and also their children. We cannot get closer, go away from them as they are infectious. (Primary Ed., 1<sup>st</sup> grade)*

*Syrian asylum seekers' children are like an **unplanned birth**; because they are not welcomed good where they refuged. Generally, they are exposed to discrimination. This is like the discrimination between two children of a family: one is a desired; while the other is an unplanned birth. (Primary Ed., 1st grade)*

*Syrian asylum seekers' children are like an **invader**; because till they come to our country, they want the things that belong to us. They even enter the universities. They try to kick out us from our country. (Middle School Mathematics Ed., 1st grade)*

*Syrian asylum seekers' children are like a **leech**; because they adheres and absorb our blood. (Primary Ed., 4th grade)*

According to the examples, the pre-service primary teacher think that they are dangerous, the other pre-service primary teacher states that Turkish people cannot get closer to them, since they have a prejudice of they may cause a problem. Again another primary pre-service teacher states that they are not welcomed well; since they refuged the country in an unplanned way/time. The other two pre-service teachers believe in that they take the things that are belong to Turkish people, like an invader covers everywhere and like a leech absorbing the blood of a body.

### **The Findings Related to the Third Research Question**

The third research question is about the distribution of pre-service teachers with respect to their department and grade in each category. Table 17 gives these distributions. By the way, it is tried

to be found whether there is a difference between the metaphors of pre-service teachers whose departments or grades are different.

**Table 17. The distribution of categories related to the participants' grade and department**

| Category                     | Grade | Department        |       |                   |       |                      |       |                                     |       |       |       |
|------------------------------|-------|-------------------|-------|-------------------|-------|----------------------|-------|-------------------------------------|-------|-------|-------|
|                              |       | Primary Education |       | Science Education |       | Pre-School Education |       | Middle School Mathematics Education |       | TOTAL |       |
|                              |       | f                 | %     | f                 | %     | f                    | %     | f                                   | %     | f     | %     |
| Far from home                | 1     | 6                 | 18.18 | 3                 | 9.09  | 2                    | 6.06  | 4                                   | 12.13 | 15    | 45.45 |
|                              | 4     | 6                 | 18.18 | 6                 | 18.18 | 6                    | 18.18 | -                                   | -     | 18    | 54.54 |
|                              | TOTAL | 12                | 36.36 | 9                 | 27.27 | 8                    | 24.24 | 4                                   | 12.13 | 33    | 100   |
| Care -Seeking                | 1     | 2                 | 7.14  | 6                 | 21.43 | 4                    | 14.29 | 3                                   | 10.71 | 15    | 53.57 |
|                              | 4     | 3                 | 10.71 | 5                 | 17.86 | 5                    | 17.86 | -                                   | -     | 13    | 46.43 |
|                              | TOTAL | 5                 | 17.85 | 11                | 39.29 | 9                    | 32.15 | 3                                   | 10.71 | 28    | 100   |
| Innocent                     | 1     | 1                 | 5.26  | 2                 | 10.52 | 2                    | 10.52 | 1                                   | 5.26  | 6     | 31.56 |
|                              | 4     | -                 | -     | 13                | 68.42 | -                    | -     | -                                   | -     | 13    | 68.42 |
|                              | TOTAL | 1                 | 5.26  | 15                | 78.94 | 2                    | 10.52 | 1                                   | 5.26  | 19    | 100   |
| Children                     | 1     | -                 | -     | -                 | -     | 3                    | 23.08 | 6                                   | 46.15 | 9     | 69.23 |
|                              | 4     | 1                 | 7.69  | 2                 | 15.38 | 1                    | 7.69  | -                                   | -     | 4     | 30.76 |
|                              | TOTAL | 1                 | 7.69  | 2                 | 15.38 | 4                    | 30.77 | 6                                   | 46.15 | 13    | 100   |
| Immigrants forced to migrate | 1     | 3                 | 33.33 | 1                 | 11.11 | 1                    | 11.11 | 1                                   | 11.11 | 6     | 66.66 |
|                              | 4     | 1                 | 11.11 | -                 | -     | 2                    | 22.22 | -                                   | -     | 3     | 33.33 |
|                              | TOTAL | 4                 | 44.44 | 1                 | 11.11 | 3                    | 33.33 | 1                                   | 11.11 | 9     | 100   |
| Winnowed                     | 1     | 1                 | 11.11 | 1                 | 11.11 | 1                    | 11.11 | 3                                   | 33.33 | 6     | 66.66 |
|                              | 4     | 2                 | 22.22 | 1                 | 11.11 | -                    | -     | -                                   | -     | 3     | 33.33 |
|                              | TOTAL | 3                 | 33.33 | 2                 | 22.22 | 1                    | 11.11 | 3                                   | 33.33 | 9     | 100   |
| Survivor                     | 1     | -                 | -     | -                 | -     | 3                    | 33.33 | 2                                   | 22.22 | 5     | 55.55 |
|                              | 4     | 1                 | 11.11 | 1                 | 11.11 | 2                    | 22.22 | -                                   | -     | 4     | 44.44 |
|                              | TOTAL | 1                 | 11.11 | 1                 | 11.11 | 5                    | 55.55 | 2                                   | 22.22 | 9     | 100   |
| Excluded                     | 1     | -                 | -     | 1                 | 12.50 | 3                    | 37.50 | -                                   | -     | 4     | 50.00 |
|                              | 4     | 1                 | 12.50 | 3                 | 37.50 | -                    | -     | -                                   | -     | 4     | 50.00 |
|                              | TOTAL | 1                 | 12.50 | 4                 | 50.00 | 3                    | 37.50 | -                                   | -     | 8     | 100   |
| Sufferer                     | 1     | 2                 | 28.57 | 3                 | 42.86 | -                    | -     | 1                                   | 14.28 | 6     | 85.71 |
|                              | 4     | 1                 | 14.28 | -                 | -     | -                    | -     | -                                   | -     | 1     | 14.28 |
|                              | TOTAL | 3                 | 42.86 | 3                 | 42.86 | -                    | -     | 1                                   | 14.28 | 7     | 100   |
| Discoverable                 | 1     | 3                 | 42.86 | 1                 | 14.28 | -                    | -     | -                                   | -     | 4     | 57.14 |
|                              | 4     | 1                 | 14.28 | -                 | -     | 2                    | 28.57 | -                                   | -     | 3     | 42.86 |
|                              | TOTAL | 4                 | 57.14 | 1                 | 14.28 | 2                    | 28.57 | -                                   | -     | 7     | 100   |
| Defenseless                  | 1     | 1                 | 16.67 | 2                 | 33.33 | -                    | -     | -                                   | -     | 3     | 50.00 |
|                              | 4     | 1                 | 16.67 | 1                 | 16.67 | 1                    | 16.67 | -                                   | -     | 3     | 50.00 |
|                              | TOTAL | 2                 | 33.33 | 3                 | 50.00 | 1                    | 16.67 | -                                   | -     | 6     | 100   |
| Can be shaped                | 1     | 1                 | 16.67 | 2                 | 33.33 | -                    | -     | -                                   | -     | 3     | 50.00 |
|                              | 4     | 2                 | 33.33 | 1                 | 16.67 | -                    | -     | -                                   | -     | 3     | 50.00 |
|                              | TOTAL | 3                 | 50.00 | 3                 | 50.00 | -                    | -     | -                                   | -     | 6     | 100   |
| Dangerous for society        | 1     | 2                 | 33.33 | -                 | -     | -                    | -     | 1                                   | 16.67 | 3     | 50.00 |
|                              | 4     | 3                 | 50.00 | -                 | -     | -                    | -     | -                                   | -     | 3     | 50.00 |
|                              | TOTAL | 5                 | 83.33 | -                 | -     | -                    | -     | 1                                   | 16.67 | 6     | 100   |

As it is seen from Table 17, in some categories, the differences between departments or grades were detected. Those are the categories of 'Innocent', 'Children', 'Survivor', 'Sufferer' and 'Dangerous for society'. Under the 'Innocent' category, 78.94% of the metaphors are belong to the

pre-service science teachers (f=15). The most of these pre-service science teachers (f=13, 68%42) are the 4<sup>th</sup> graders. That is, the most of the metaphors under 'Innocent' category were developed by the 4<sup>th</sup> grade pre-service science teachers. In addition, nearly half of the metaphors under the category of 'Children' were developed by the 1<sup>st</sup> grade pre-service middle school mathematics teachers ( f=6, 46.15%). Moreover, the 55.55% of the metaphors under 'Survivor' category are belong to the pre-service preschool teachers (f=5). Additionally, the most of the pre-service teachers (f=6, 85.71%) who developed metaphors under 'Sufferer' category are the 1<sup>st</sup> graders. Lastly, the most of the metaphors under the 'Dangerous for society' category are developed by Primary teachers (f=5, 83.33%).

## RESULTS AND DISCUSSION

In this study, it is aimed to reveal the metaphoric perceptions of pre-service teachers about Syrian asylum seekers' children. The findings show that the most of the pre-service teachers perceive Syrian asylum seekers' children as traumatized and helpless and need support of others. According to Rutter (2006), such a consideration is a Humanitarian Discourse. All of the qualifications of Humanitarian discourse are present in most of the categories of the metaphors. In addition, there is a category which qualifies Syrian asylum seekers' children as dangerous. Different from all other categories, only the '*Children*' category underlines the equity of them with the other children. All of these results will be explained respectively in following.

First of all, the most of the pre-service teachers give importance about them to that they are *far from home*. They define being far from home in three ways: (1) being away from their natural environment, (2) lacking something when far from home and (3) having no place considering as home. Therefore, the most of them appreciate the disadvantages resulting from being far from their country, their home and other familiar places. They think that these are hard situations may cause a trauma. Therefore, many of them believe that they are *sufferer* and *excluded* by others.

Secondly, many of the pre-service teachers believe that they are the ones who have no authorization or competencies to change the things becoming. In other words, they are helpless. In pre-service teachers' point of view, they are directed by governments, cases, situations and other people. They were *forced to migrate*; that is they are *winnowed*. Such a view discriminates them from all badness. In fact, findings show already that many of the pre-service teachers believe that they are *innocent*. In addition, some of the pre-service teachers consider them as *defenseless*. Being incompetent to interfere the cases, being only innocent children directed by cases and elders and being *defenseless* make them need to other people.

Thirdly, many of the pre service teachers believe that, Syrian asylum seekers' children need others. They need help, curiosity and directions of others. Some of the pre-service teachers developed metaphors stating that they are *care-seeking*. Some others put forward that they need help and curiosity of others to *be discovered*. Even if others do not discover them, Syrian asylum seekers' children will disappear or cannot display their skills at all. That is, some pre-service teachers stated in their metaphors that others will shape them and their future. They constitute the category namely '*can be shaped*'.

Fourthly, on the contrary to the view of they are defenseless and they need to care of others, some pre-service teachers believe that they are *survivors*. However, this group also based their metaphors to the view of that they survive even all the traumatic things they lived. Therefore, the metaphors under this category have a humanitarian discourse also.

Finally, a minority group of pre-service teachers develop negative metaphors about these children. There is only one negative category namely '*Dangerous for society*'. These pre-service teachers believe in that they are hazardous, dangerous, surround and invader Turkey and try to take the thing belonging to Turkish people. These pre-service teachers having negative perceptions comprise the minority and the most of them have positive perceptions about Syrian asylum seekers' children. There are other studies presenting the negative views of Turkish people about Syrian asylum seekers

(Kara, Yiğit & Ağırman, 2016; Topkaya & Akdağ, 2016; Uzun & Özcan, 2017). Although, those studies are about Syrian asylum seekers not their children and even the focus shifts from Syrian asylum seekers to their children in this study, it was found that some pre-service teachers have negative perceptions about their children. These negative perceptions may be caused from focusing only their backgrounds and considering it traumatic. Eth and Pynoos (1985) define trauma as a helplessness which results in intolerable, danger, anxiety and instructional arousal (as cited in Rutter, 2006). Therefore, the metaphors under this negative category may result from the thought that the forced migration is a traumatic issue and so they are dangerous.

In conclusion, from these results given above, it can be inferred that the most of the pre-service teachers' perceptions are in a humanitarian discourse. Nevertheless, according to Rutter (2006), constructing a perception of asylum seekers' children as 'traumatized' prevent people from making a real analyze of their pre and post-migration experiences and also it causes an understanding of that asylum seekers' children are a homogenous group and they do not have personal learning, social and emotional needs. However, even they are forced migrants, it cannot be known who they are and what their needs are; in fact it is an easy way to accept them as a homogenous group. If a generalization will be made; they should be generalized as 'children'. Like all children they have some learning, social and emotional needs.

In this study, a group of pre-service teachers developed the metaphor of *children* as desired. The reasons of their metaphor are mostly related that these children should not be discriminated from the other children. The most of these pre-service teachers are from the department of Middle School Mathematics Education. It was expected also from the other pre-service teachers to think like that and develop the metaphor of children. If inclusion of these children is desired, no discrimination in discourses should be present.

Schools and teachers are very important during inclusion process of asylum seekers' children; yet in the absence of appropriate support and responsiveness, their impact on this process can be profound (Block et. al.). Therefore, teachers' perceptions are vital. To make their perceptions and discourses more inclusive, equal and embracing diversity, their pre and in-service education should be well planned (Eryaman, 2007; Riedler & Eryaman, 2016). The courses such as 'Multicultural Education' and 'Sociology of Migration' may be included to the teacher education programs.

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## **Investigation of the Mediator Variable Effect Using BK, Sobel and Bootstrap Methods (Mathematical Literacy Case)**

**Selda Örs Özdil<sup>i</sup>**  
Ankara University

**Ömer Kutlu<sup>ii</sup>**  
Ankara University

### **Abstract**

This study aimed to compare different mediation analysis methods (BK, Sobel, and bootstrapping) based on single mediation models for groups of different sizes. For this purpose, the PISA 2012 data for Turkey were used. In order to compare the mediation analysis methods, 4,848 students from Turkey that participated in PISA 2012 were divided into sample groups of 100, 200, 500 and 1,000 individuals. Among the mediation analysis methods discussed within the scope of the research, the BK method was implemented assisted by a regression analysis while for the remaining two methods, SPSS macros were utilized. For the analysis, syntax files were created to be run on SPSS. The results of the analysis of single mediation models revealed that the mathematics anxiety variable mediated the relationship between classroom climate and mathematical literacy. According to the analyses based on all three methods, it was observed that the standard error value increased as the sample group became smaller. Although the standard errors of the Sobel test and bootstrap method were close to each other in large study groups, the former produced less erroneous results in large samples whereas the latter yielded more reliable results in smaller samples.

**Keywords:** Mediator variable, mediation effect, Sobel test, bootstrap, BK method, PISA

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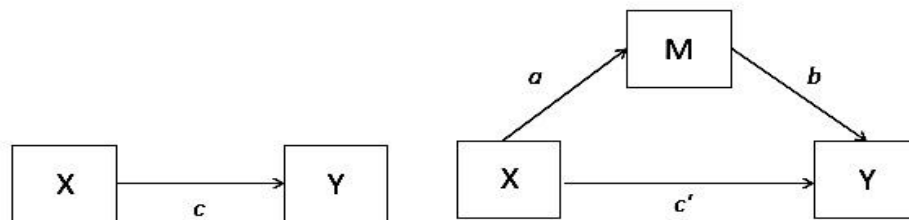
<sup>i</sup> **Selda Örs Özdil**, Assist. Prof. Dr., Ankara University, Measurement and Evaluation

**Correspondence:** seldaors85@gmail.com

<sup>ii</sup> **Ömer Kutlu**, Instructor Dr., Ankara University, Measurement and Evaluation

## INTRODUCTION

The concept of mediation is used to indicate that the effect of one or more independent variables (X) is transferred by a third variable(s) to a dependent variable (Y). Numerous studies in the literature have examined not only direct effects but also other relationships considered to have indirect effects. In cases where there are indirect effects, there is a third variable called the mediator variable, which facilitates the relationship between two variables (MacKinnon, Fairchild, & Fritz, 2007). The mediator variable is very useful in providing an understanding of the mechanism by which a cause (independent variable) has an effect on a result (dependent variable) (Fairchild, & MacKinnon, 2009). Therefore, a mediator analysis tries to define the mediation process in which the effect is moved from an independent variable to a dependent variable (Muller, Judd, & Yzerbyt, 2005). Mediation hypotheses seek answers to how an independent variable (X) affects a dependent variable (Y) through one or more interacting variable(s) or mediator variable(s) (M) and the direction of this effect. In this process, models with one mediator variable are defined as simple/single mediation models (Baron & Kenny, 1986; MacKinnon et al., 2007; Preacher, & Hayes, 2008). Figure 1 presents a diagram of the single mediation model (Baron, & Kenny, 1986; Frazier, Tix, & Barron, 2004; Kenny, Kashy, & Bolger, 1998; MacKinnon et al., 2007; Preacher, & Hayes, 2008; Wu, & Zumbo, 2007).



**Figure 1. Single Mediation Model**

In Figure 1, a causal relationship between the independent variable X and the dependent variable Y is defined and the total effect of X on Y is shown by the coefficient c. In this figure, coefficient a refers to the effect of X on the mediator variable M; coefficient b indicates the effect of M on Y except for the partial effect of X; and coefficient c is the effect of X on Y under the mediation of M (Hayes, 2013; MacKinnon et al., 2007; Preacher, & Hayes, 2008).

In order to estimate the coefficients in the defined model, basic regression equations (1), (2) and (3) are used (Hayes, 2013; MacKinnon et al., 2007; MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002; Preacher, & Hayes, 2004).

$$Y = i_1 + c X + e_1 \quad (1)$$

$$Y = i_2 + c' X + b M + e_2 \quad (2)$$

$$M = i_3 + a X + e_3 \quad (3)$$

The coefficient c in this equation and in Figure 1 shows the total effect, c' coefficient shows the direct effect and ab coefficient indicates the indirect effect. In this case, the total effect of X on Y will be equal to the sum of the direct and indirect effects. This is represented by the following mathematical equation:

$$c = c' + ab \quad (4)$$

Following this step, the mediation effect can be calculated using one of the following two equations (Hayes, 2009; MacKinnon et al., 2007; MacKinnon & Dwyer, 1993).

$$ab = c - c' \quad (5)$$

$$c' = c - ab \quad (6)$$

Studies by Judd, & Kenny (1981) and Baron, & Kenny (1986) in the field of social psychology prompted many other researchers to utilize mediation models in later studies (as cited in Burmaoglu, Polat, & Meydan, 2013). It is noteworthy that in the 1990s, there was a remarkable increase in the attempts to compare existing mediation analysis methods and develop alternative methods to determine the mediator variable effect (Cheung, & Lau, 2008; Frazier et al., 2004; Hayes, 2009; Hayes, & Preacher, 2014; MacKinnon et al., 2002; MacKinnon, & Dwyer, 1993; MacKinnon, Warsi, & Dwyer, 1995; Shourt, & Bolger, 2002; Taylor, MacKinnon, & Tein, 2008). The most comprehensive research on this subject belongs to MacKinnon et al. (2002), who investigated 14 different mediation analysis methods used in studies in the literature conducted in various disciplines. This methodological diversity in the literature also indicates that there is no clear consensus between disciplines concerning how to determine the mediator variable effect.

Mediation hypotheses are generally tested according to the Baron and Kenny (BK) method, and a partial or full mediation decision is made according to the result of this test. In the BK method, mediation relationships are established in four steps (with three regression equations). Baron, & Kenny (1986) explained these steps as follows:

1. Variable X significantly predicts variable Y (path c).
2. Variable X significantly predicts M (path a).
3. When the effect of variable X is controlled, variable(s) M significantly predicts Y ( $H_0: b=0$ ).
4. When the effect of variable M is controlled, there is a significant decrease in the relationship between X and Y or the relationship between these two variables is no longer significant ( $H_0: c'=0$ ).

According to this method, the greater the reduction in coefficient c, the greater the degree of mediation. Coefficient c' being zero or too close to zero indicates the presence of a mediator variable, and a smaller decrease in coefficient c' (without approaching zero) suggests that there may be more than one mediator variable. As a result, Baron and Kenny's approach makes a distinction between a full/excellent mediation (all effect of X on Y is through M) and partial mediation (only part of the effect of X on Y is through M). When the effect of M is controlled, if the relationship between X and Y completely disappears, then the data confirm the full mediation hypothesis, and the relationship is still present but significantly reduced, this supports the partial mediation hypothesis (Pardo & Moran, 2013).

Kenny et al. (1998) reconsidered the causal step approach and suggested that this method does not directly predict the size of the indirect effect (ab) or provide standard errors for the confidence interval values generated for the interpretation of the significance of the indirect effect; it was rather the process of testing each of the a, b and c coefficients individually. Zhao, Lynch, & Chen (2010) stated that the magnitude of mediation should be evaluated starting with the size of the indirect effect (ab), not the lack of a direct effect (c'), and it is not sufficient to know the statistical significance of coefficients c and c' to determine whether they are actually different; instead, a comparison should be made between these coefficients. However, studies adopting the causal step approach generally do not test the significance of indirect effects in the mediation model. In addition, some of the disadvantages of this method have been previously reported. For example, in their simulation study including different sample sizes, MacKinnon et al. (2002) found that the BK method caused a type I error and

the statistical power of the test was low in all conditions. Other approaches to testing mediation hypotheses focus on the product term  $ab$  value (this value is logically equal to the difference between the total effect and the direct effect), rather than individual paths in the mediation models. The Sobel test (Sobel, 1982), which is based on the product of coefficients  $a$  and  $b$  and also known as the multiplication of coefficients, is another method that is most commonly used in the literature (MacKinnon et al., 2002).

The Sobel test involves the multiplication of  $a$  and  $b$  coefficient estimates and determining the ratio of the resulting value to standard error. Numerous formulas have been proposed to estimate this standard error; however, the differences between them do not often have a significant effect on the test results (MacKinnon et al., 2002; Preacher & Hayes, 2004, 2008). Sobel (1982) proposed the use of the following formula:

$$z = \frac{ab}{\sqrt{b^2 s_a^2 + a^2 s_b^2}} \quad (7)$$

where coefficient  $a$  refers to the path between the independent variable and mediator variable,  $S_a$  is the standard error of this path (coefficient),  $b$  represents the path between the mediator variable and the dependent variable, and  $S_b$  is the standard error of path  $b$ . The result of this equation is the Z-score of the mediation effect. This score is used to determine whether the mediation effect is statistically significant through the use of probabilities corresponding to a standard normal distribution. If z-score is greater than 1.96, the mediation effect is interpreted to be statistically significant at the .05 level (MacKinnon et al., 2002; Mallinckrodt, Abraham, Wei, & Russell, 2006).

Studies investigating mediation analysis suggest that a multiplication result of two normally distributed variables is not normally distributed, and that the sampling distribution of  $ab$  multiplication can only be normal in large samples. Therefore, researchers have criticized the use of standard normal distribution to determine the probability value of the indirect effect and showed that the distribution of the  $ab$  product tends to be asymmetric. As a result of this asymmetry, the statistical power of the Sobel test in small samples is lower compared to the methods that attempt to correct this asymmetry (MacKinnon et al., 2002; MacKinnon et al., 1995; Mallinckrodt et al., 2006; Kenny et al., 1998). In order to overcome this problem, some authors (Preacher, & Hayes, 2004, 2008; Shrout, & Bolger, 2002) suggested using the bootstrap method.

Bootstrapping is a non-parametric resampling method and differs from other mediation methods in that it does not require the normality assumption of sampling distribution to test mediation. Bootstrapping is a computationally intensive method, which involves multiple data resampling processes and estimation of the indirect effect in each resampled data set. By repeating this process thousands of times, an empirical approach to  $ab$  sampling distribution is created and then used to estimate the confidence intervals of the indirect effect. Shrout, & Bolger (2002) explained the steps of the bootstrap percentile method in examining the mediation effect as follows:

1. In an original data set consisting of  $N$  observations, a desired number of bootstrap samples are created by randomly replacing observations.
2. For each bootstrap sample,  $a$ ,  $b$  and  $ab$  are calculated and the results are saved.
3. Steps 1 and 2 are repeated  $j$  times.
4. The distribution of the estimates is examined, and if  $\alpha=0.5$ ,  $ab$  values and confidence intervals for the 2.5 and 97.5 percentiles of the distribution are determined.

Shrout, & Bolger (2002) determined that the bootstrap method was strong when the sample distribution of the mediation effects was non-zero or skewed. Cheung, & Lau (2008) expanded the simulation study of MacKinnon et al. (2002) and reported that bootstrapping could produce better results than the Sobel test. The authors also suggested that the bootstrap method was particularly useful when there was no information on the distribution or when the assumptions of distribution were violated. Hayes (2009) stated that bootstrapping had the highest power and provided the best type I error control in small samples. In a sample size of 60, Mallinckrodt et al. (2006) did not observe a statistically significant mediating effect using the BK method, but this effect was clearly revealed by the bootstrap method.

Although in recent years different methods have been developed for the identification of mediation effect in mediation models and examined in simulation studies, there is no definite agreement on the conditions in which these methods can be used or the limitations and advantages of each method. It is also noteworthy that the comparison of the methods used to determine the mediating effects is usually performed based on artificial (simulative) data. Furthermore, to the best of our knowledge, no study has been undertaken in Turkey to examine the use of different methods for mediation analysis. Therefore, it is considered important to investigate the mediator variable effect in an established single mediation model using the BK, Sobel and bootstrap methods and compare the efficiency of these methods in different sample sizes. By comparing the methods designed to determine the mediation effect in different situations, this study is expected to contribute to the accumulation of theoretical knowledge. Furthermore, the current research differs from most related previous studies in that it used real data sets, rather than artificial data to examine the mediation analysis methods and compare the results, which is considered to be another significant contribution to the literature regarding mediation tests. It is hoped that the results of the research will guide researchers in selecting the appropriate method to test the mediation effect in different group sizes.

The aim of this research was to compare the BK, Sobel and bootstrap mediation analysis methods in sample groups of different sizes using single mediation models based on the PISA 2012 mathematical literacy data for Turkey. In line with this purpose, the following research questions were constructed:

1. In the single mediation model for the classroom climate, mathematics anxiety, and mathematical literacy variables, does mathematics anxiety have a mediating effect on the whole group and sample groups of different sizes according to the BK method?
2. In the single mediation model for the classroom climate, mathematics anxiety, and mathematical literacy variables, does mathematics anxiety have a mediating effect on the whole group and sample groups of different sizes according to the Sobel test?
3. In the single mediation model for the classroom climate, mathematics anxiety, and mathematical literacy variables, does mathematics anxiety have a mediating effect on the whole group and sample groups of different sizes according to the bootstrap method?

## **METHOD**

### **Research Model**

This study had a basic (theoretical) research design to compare different methods for determining the effect of the mediator variable in mediation models using different sample sizes and

contribute new data to the literature. The main purpose of basic research is to add new insights to the existing information (Karasar, 2008).

### Study Group

In line with the general purpose of the research, the population of the study comprised Turkish students that participated in PISA 2012, and the sample consisted of 4,848 students selected from 965,736 students in the 15-year-old age group enrolled in grades 7 or higher in Turkey (Ministry of National Education, 2013). Within the scope of the study, study groups of 100, 200, 500 and 1,000 students were created to seeks answers to the research questions. In the selection of the study groups, a proportionate stratified selection was undertaken by taking into account the students' mathematical proficiency levels. In PISA, students with a proficiency level of 5 or 6 are considered to be in the upper performance group. The students were evaluated according to the three performance groups of upper (levels 5 and above), middle (levels 3 and 4) and lower (levels 2 and below) in proportionate stratified sampling. Before the selection of the sample, the possible missing data and extreme values of the variables of mathematical literacy, classroom climate and mathematics anxiety were examined. As a result of the analysis, no missing data was observed in the mathematical literacy variable, while the rate of missing data was 34% for the classroom climate and mathematics anxiety variables. Van Buuren (2011) stated that if the rate of missing data was less than 30%, data assignment could be made, but if this value is 30% or greater, then the missing data should be removed. As a result of examining the data set, it was determined that the majority of the missing data in both variables were related by the common students who did not respond to the items in the variables. Considering that exclusion of missing data from analysis would still leave a sufficient sample size, the missing data belonging to the variables were removed from the data set. Following the procedures related to missing data and extreme values, the final size of the sample was 3,133 students. Table 1 presents the distribution of these students according to the performance groups.

**Table 1. Distribution of Students by Performance Group**

| Proficiency Level | Performance Group | Study Group |    |       |    |       |    |        |    |        |    |
|-------------------|-------------------|-------------|----|-------|----|-------|----|--------|----|--------|----|
|                   |                   | n=100       |    | n=200 |    | n=500 |    | n=1000 |    | n=3133 |    |
|                   |                   | n           | %  | N     | %  | n     | %  | n      | %  | n      | %  |
| 6<br>5            | Upper             | 7           | 7  | 13    | 7  | 32    | 7  | 64     | 7  | 198    | 7  |
| 4<br>3            | Middle            | 26          | 26 | 53    | 26 | 131   | 26 | 262    | 26 | 824    | 26 |
| 2<br>1<br>below 1 | Lower             | 67          | 67 | 134   | 67 | 337   | 67 | 674    | 67 | 2111   | 67 |

As shown in Table 1, 67% of the students selected for this research were in the lower performance group in terms of mathematical literacy scores, and 33% were in the middle and upper performance groups.

### Data Collection Tools

This research utilized the responses of the selected sample to the items in the mathematical literacy test and student questionnaire in PISA 2012. The entire PISA 2012 data were obtained from the official website of OECD and the data belonging to Turkey were transferred to the SPSS program. The students' mathematics literacy scores were estimated according to the one-parameter logistic model of Matter Response Theory, and five different possible values were determined (OECD, 2013). In this research, the average of these five possible mathematics literacy scores (PV1MATH-

PV5MATH) was taken into consideration. In addition to cognitive tests, PISA includes a student questionnaire that takes approximately 30 minutes to complete. This questionnaire collects data on many dimensions, such as individual characteristics, socio-economic background, educational background, attitudes, learning strategies, learning motives, effectiveness of teaching, and classroom and school climate. In this research, analyses were conducted based on scale indexes of students' mathematics anxiety and classroom climate variables.

### Data Analysis

The main purpose of a mediation analysis is to reveal how a relationship between two variables is connected with the presence of another variable. From the mediation analysis methods, the BK method was undertaken with the help of regression analysis while the Sobel test and bootstrapping were performed utilizing the SPSS macros developed by Preacher & Hayes (2004) and accessed from the website of Andrew F. Hayes. Prior to the data analysis, the data set was examined in terms of missing and extreme values.

Before proceeding to the mediation analysis, the assumptions of each analysis method must be tested. Regression equations are used in mediation analyses and each of these equations requires the assumptions of regression analysis to be met (Cohen, Cohen, West, & Aiken, 2003). Thus, in this study, for each data set, it was first determined whether the assumption of univariate normality was satisfied by examining the skewness and kurtosis coefficients of the variables. Table 2 presents these coefficients obtained from the study groups of different sizes.

**Table 2. Skewness and Kurtosis Coefficients of the Variables**

| Variable              | N=100        |              | N=200        |              | N=500        |              | N=1,000      |              | N=3,133      |              |
|-----------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
|                       | Skewn<br>ess | Kurto<br>sis | Skewn<br>ess | Kurto<br>sis | Skewn<br>ess | Kurto<br>sis | Skewn<br>ess | Kurto<br>sis | Skewn<br>ess | Kurto<br>sis |
| Classroom Climate     | 0.163        | 0.315        | -0.101       | 0.450        | -0.001       | 0.304        | 0.120        | 0.230        | 0.025        | 0.227        |
| Mathematics Anxiety   | -0.278       | 0.739        | 0.103        | 0.217        | 0.011        | 0.476        | -0.076       | 0.375        | -0.119       | 0.458        |
| Mathematical Literacy | 0.644        | -0.028       | 0.560        | -0.257       | 0.668        | 0.032        | 0.559        | -0.092       | 0.538        | -0.142       |

The skewness and kurtosis coefficients of the variables were in the  $\pm 1$  range in the study groups (Table 2). This was evaluated as the variable scores not showing an extreme deviation from the normal distribution (Mertler, & Vannatta, 2005). However, the skewness coefficient of mathematical literacy scores being over 0.5 in all groups can be interpreted as showing a slightly skewed distribution. In each group, a scattering matrix was used to determine whether the variables met the assumptions of linearity and multivariate normality. The elliptical distributions in the matrix are evaluated as multivariate normality and linearity. Ensuring multivariate normality also requires satisfying the conditions for univariate normality (Mertler, & Vannata, 2005). A high correlation between the variables ( $r > 0.80$ ) indicates the presence of a multicollinearity problem. Therefore, the correlation coefficients between the variables were calculated to determine whether there was multicollinearity between the variables. Table 3 shows the correlation coefficients between the variables for each study group.

**Table 3. Correlation Coefficients Between the Variables**

| Study Group (N) | Variable              | Classroom Climate | Mathematics Anxiety | Mathematical Literacy |
|-----------------|-----------------------|-------------------|---------------------|-----------------------|
| 3,133           | Classroom Climate     | 1                 | -0.221**            | 0.259**               |
|                 | Mathematics Anxiety   |                   | 1                   | -0.316**              |
|                 | Mathematical Literacy |                   |                     | 1                     |
| 1,000           | Classroom Climate     | 1                 | -0.216**            | 0.289**               |
|                 | Mathematics Anxiety   |                   | 1                   | -0.282**              |
|                 | Mathematical Literacy |                   |                     | 1                     |
| 500             | Classroom Climate     | 1                 | -0.295**            | 0.256**               |
|                 | Mathematics Anxiety   |                   | 1                   | -0.329**              |
|                 | Mathematical Literacy |                   |                     | 1                     |
| 200             | Classroom Climate     | 1                 | -0.156*             | 0.237**               |
|                 | Mathematics Anxiety   |                   | 1                   | -0.384**              |
|                 | Mathematical Literacy |                   |                     | 1                     |
| 100             | Classroom Climate     | 1                 | -0.270**            | 0.262**               |
|                 | Mathematics Anxiety   |                   | 1                   | -0.311**              |
|                 | Mathematical Literacy |                   |                     | 1                     |

\*\*significant correlation at 0.01 \* significant correlation at 0.05

When the correlation coefficients between the variables were examined (Table 3), it was determined that all values were below 0.80, indicating that there was no multicollinearity problem. As a result of the analysis of the assumptions, the data were found to be suitable for analysis. After analysis of missing data and extreme values of the PISA 2012 Turkish sample, the mediation coefficients obtained from the final data set of 3,133 students (the entire group) were used as reference values in the comparisons between different study groups.

The SPSS program was used to analyze the data and examine the assumptions. In order to perform single and multiple mediation analyses, syntax files were created as described by Hayes (2013) and these files were used in SPSS. In addition, MedGraph program and the SPSS output files downloaded from <http://pavlov.psyc.vuw.ac.nz/paul-jose/medgraph/Downloads.php> were used to conduct single mediation analyses. For these analyses, the level of significance was accepted as .05.

## RESULTS

Table 4 presents the results of the BK method concerning the mediating effect of mathematics anxiety in the relationship between classroom climate and mathematical literacy for each study group. These results were obtained from the three regression analyses undertaken for each group.

**Table 4. Results of BK Mediation Analysis in Study Groups of Different Sizes**

| Study Group (N) | Coefficient | B       | SHB   | $\beta$ | t       | p    |
|-----------------|-------------|---------|-------|---------|---------|------|
| 3,133           | c           | 25.641  | 1.708 | 0.259   | 15.009  | .000 |
|                 | a           | -0.247  | 0.019 | -0.221  | -12.677 | .000 |
|                 | b           | -24.119 | 1.507 | -0.272  | -16.009 | .000 |
|                 | c'          | 19.683  | 1.684 | 0.199   | 11.685  | .000 |
| 1,000           | c           | 30.298  | 3.181 | 0.289   | 9.524   | .000 |
|                 | a           | -0.248  | 0.036 | -0.216  | -6.973  | .000 |
|                 | b           | -21.027 | 2.756 | -0.230  | -7.631  | .000 |
|                 | c'          | 25.087  | 3.168 | 0.239   | 7.918   | .000 |
| 500             | c           | 25.975  | 4.393 | 0.256   | 5.913   | .000 |
|                 | a           | -0.319  | 0.046 | -0.295  | -6.883  | .000 |
|                 | b           | -26.029 | 4.085 | -0.278  | -6.371  | .000 |
|                 | c'          | 17.666  | 4.425 | 0.174   | 3.993   | .000 |
| 200             | c           | 24.016  | 6.993 | 0.237   | 3.434   | .001 |

|     |    |         |       |        |        |      |
|-----|----|---------|-------|--------|--------|------|
|     | a  | -0.177  | 0.080 | -0.156 | -2.220 | .028 |
|     | b  | -31.659 | 5.820 | -0.355 | -5.440 | .000 |
|     | c' | 18.407  | 6.617 | 0.182  | 2.782  | .006 |
| 100 | c  | 23.582  | 8.788 | 0.262  | 2.684  | .009 |
|     | a  | -0.323  | 0.116 | -0.270 | -2.779 | .007 |
|     | b  | -19.516 | 7.408 | -0.259 | -2.634 | .010 |
|     | c' | 17.273  | 8.863 | 0.192  | 1.949  | .054 |

According to the results of the BK method, the classroom climate variable significantly predicted mathematical literacy (coefficient c) in the first step and mathematics anxiety (coefficient a) in the second step. In the third step, the mathematics anxiety variable significantly predicted mathematical literacy (coefficient b). The statistical significance of the coefficient values in the first three steps shows that the conditions of the BK method were met. In the reference group, when coefficient c representing the total effect on the relationship between classroom climate and mathematical literacy ( $B = 25.64$ ,  $\beta = 0.26$ ) was compared to coefficient c' that refers to the direct effect ( $B = 19.68$ ,  $\beta = 0.20$ ), it was found that there was a decrease in the predictive ability of classroom climate for mathematical literacy. According to Baron & Kenny's (1986) most widely used definition of mediation, in order for a variable to be a mediator, coefficient c' obtained from the regression equation when the mediator variable is added should be lower than coefficient c representing the value before the addition of the mediator. When the effect of a mediator variable is controlled, if the independent variable is no longer a significant predictor of the dependent variable, this indicates the presence of a full mediation, and if both the independent and mediator variables significantly predict the dependent variable, then this supports partial mediation. The values in Table 4 show that the mathematics anxiety variable was a partial mediator variable between classroom climate and mathematical literacy according to the BK method.

When the results obtained from different study groups (Table 4) are analyzed, it was observed that in all study groups, the classroom climate variable significantly predicted mathematical literacy (coefficient c) and mathematics anxiety (coefficient a), and the mathematics anxiety variable was a significant predictor of mathematical literacy (coefficient b). These results indicate that the conditions of the BK method for the first three steps were fulfilled; i.e., coefficients c, a and b were statistically significant. However, in the fourth step the method, coefficient c' values differed between the study groups. While the direct effect of classroom climate on mathematical literacy (coefficient c') was significant for all the study groups containing 1,000, 500 and 200 students, this coefficient was not significant in the group of 100 students. This suggests that the mathematics anxiety variable in the 1,000, 500, and 200 student groups was a partial mediator in the relationship between classroom climate and mathematical literacy according to the BK method. This result is interpreted as classroom climate not only directly affected mathematical literacy but also had an indirect effect on this variable through the mathematics anxiety mediator. In the group of 100 students, it was determined that the relationship between classroom climate and mathematical literacy was solely maintained by the mathematics anxiety mediator; i.e., there was a full mediation. In other words, for this sample size, classroom climate did not have a direct effect and only had an indirect effect on mathematical literacy through the mediation of mathematics anxiety.

In the second sub-problem of the research, it was examined whether the mathematics anxiety variable had a mediating effect on the relationship between classroom climate and mathematical literacy in the single mediation model according to the Sobel test. The results were examined first in the reference group, and then in the study groups of different sizes. Table 5 presents the results of the Sobel test on mediation for each study group.

**Table 5. Results of the Sobel Test on the Mediator Effect in the Study Groups of Different Sizes**

| N=3,133          |         |            |       |      |                                  |        |                                   |        |
|------------------|---------|------------|-------|------|----------------------------------|--------|-----------------------------------|--------|
| Coefficient<br>t | B       | z<br>score | SH    | P    | Symmetric<br>Confidence Interval |        | Asymmetric<br>Confidence Interval |        |
|                  |         |            |       |      | Lower                            | Upper  | Lower                             | Upper  |
| A                | -0.247  | 9.926      | 0.590 | .000 | 4.794                            | 7.106  | 4.994                             | 7.276  |
| B                | -24.119 |            |       |      |                                  |        |                                   |        |
| Sa               | 0.019   |            |       |      |                                  |        |                                   |        |
| Sb               | 1.507   |            |       |      |                                  |        |                                   |        |
| N=1,000          |         |            |       |      |                                  |        |                                   |        |
| Coefficient<br>t | B       | z<br>score | SH    | P    | Symmetric<br>Confidence Interval |        | Asymmetric<br>Confidence Interval |        |
|                  |         |            |       |      | Lower                            | Upper  | Lower                             | Upper  |
| A                | -0.248  | 5.124      | 1.017 | .000 | 3.218                            | 7.204  | 3.563                             | 7.499  |
| B                | -21.027 |            |       |      |                                  |        |                                   |        |
| Sa               | 0.035   |            |       |      |                                  |        |                                   |        |
| Sb               | 3.168   |            |       |      |                                  |        |                                   |        |
| N=500            |         |            |       |      |                                  |        |                                   |        |
| Coefficient<br>t | B       | z<br>score | SH    | P    | Symmetric<br>Confidence Interval |        | Asymmetric<br>Confidence Interval |        |
|                  |         |            |       |      | Lower                            | Upper  | Lower                             | Upper  |
| A                | -0.319  | 4.649      | 1.787 | .000 | 4.806                            | 11.810 | 5.414                             | 12.329 |
| B                | -26.029 |            |       |      |                                  |        |                                   |        |
| Sa               | 0.046   |            |       |      |                                  |        |                                   |        |
| Sb               | 4.085   |            |       |      |                                  |        |                                   |        |
| N= 200           |         |            |       |      |                                  |        |                                   |        |
| Coefficient<br>t | B       | z<br>score | SH    | P    | Symmetric<br>Confidence Interval |        | Asymmetric<br>Confidence Interval |        |
|                  |         |            |       |      | Lower                            | Upper  | Lower                             | Upper  |
| A                | -0.177  | 2.049      | 2.768 | .042 | 0.179                            | 11.029 | 1.120                             | 11.832 |
| B                | -31.659 |            |       |      |                                  |        |                                   |        |
| Sa               | 0.080   |            |       |      |                                  |        |                                   |        |
| Sb               | 5.820   |            |       |      |                                  |        |                                   |        |
| N= 100           |         |            |       |      |                                  |        |                                   |        |
| Coefficient<br>t | B       | z<br>score | SH    | P    | Symmetric<br>Confidence Interval |        | Asymmetric<br>Confidence Interval |        |
|                  |         |            |       |      | Lower                            | Upper  | Lower                             | Upper  |
| A                | -0.323  | 1.850      | 3.411 | .064 | -0.375                           | 12.995 | 0.784                             | 13.984 |
| B                | -19.516 |            |       |      |                                  |        |                                   |        |
| Sa               | 0.116   |            |       |      |                                  |        |                                   |        |
| Sb               | 7.408   |            |       |      |                                  |        |                                   |        |

The Sobel test results for the reference group (Table 5) revealed that z score was statistically significant ( $p < .05$ ) and the mathematics anxiety variable mediated the relationship between classroom climate and mathematical literacy. Another effective method for the determination of the significance of the indirect effect is calculation of the confidence interval. The range of confidence interval not including a zero indicates that the indirect effect is significant. MacKinnon (2008) suggested that since the indirect effect ( $ab$ ) would not be normally distributed, it would be more accurate to evaluate the indirect effect based on an asymmetric confidence interval. In this study, both symmetric and asymmetric confidence intervals did not contain a zero value at the 95% level, which supports the significant mediating effect of mathematics anxiety.

When the Sobel  $z$  values obtained from the different study groups were examined, it was found that these values were significant for the study groups of 1,000, 500 and 200 students ( $p < .05$ ). In addition, the symmetric and asymmetric confidence interval values in the same three groups did not contain a zero value. Therefore, according to the Sobel test, in the 1,000-, 500- and 200-student groups, the mathematics anxiety variable was a mediator variable in the relationship between classroom climate and mathematical literacy. In the group of 100 students, the  $z$ -score not being significant ( $p > .05$ ) and the symmetric confidence intervals containing a zero value suggested that mathematics anxiety had no mediating effect; however, the asymmetric confidence interval did not include a zero value, which indicates that mathematics anxiety was actually a mediator variable. This finding supports the idea of MacKinnon (2008) that since the multiplication of  $ab$  does not have a normal distribution, it is better to evaluate the indirect effect based on the asymmetric confidence interval. In addition, it is noteworthy that as the size of the sample became smaller, the standard error of  $z$ -score increased; e.g., 0.590 in the reference group of 3,133 students but 3.411 in the group of 100 students.

In relation to the third research question, the mediation effect of the mathematics anxiety variable on the relationship between classroom climate and mathematical literacy was investigated in a single mediation model according to the bootstrap method first in the reference and then in the different-size study groups. Table 6 shows the results of mediation for each study group according to the bootstrap method.

**Table 6. Bootstrapping Results on the Mediator Effect in Study Groups of Different Sizes**

| Study Group | Bootstrap | M     | SH    | Bootstrap Confidence Interval |        |
|-------------|-----------|-------|-------|-------------------------------|--------|
|             |           |       |       | Lower                         | Upper  |
| 3,133       | ab        | 5.958 | 0.620 | 4.767                         | 7.218  |
| 1,000       | ab        | 5.211 | 0.986 | 3.379                         | 7.221  |
| 500         | ab        | 8.309 | 1.963 | 4.828                         | 12.497 |
| 200         | ab        | 5.609 | 2.902 | 0.026                         | 11.626 |
| 100         | ab        | 6.310 | 3.034 | 1.241                         | 13.000 |

Note: Bootstrap resampling = 10,000

The bootstrap confidence intervals (Table 6) obtained at the 95% level from the reference group and the study groups of 1,000, 500, 200 and 100 students did not contain a zero value. Therefore, in all groups, the mathematics anxiety variable mediated the relationship between classroom climate and mathematics literacy according to the bootstrap method.

## DISCUSSION, CONCLUSION AND RECOMMENDATIONS

The single mediation model analysis of mediation of mathematics anxiety in the relationship between classroom climate and mathematical literacy revealed the presence of a mediating effect in the reference group according to the BK, Sobel and bootstrap methods. This indicates that part of the students' positive perception of classroom environment was affected by their reduced mathematics anxiety. The mediating effect of the mathematics anxiety variable was shown by all three analysis methods for the study groups of 1,000, 500 and 200 students, but the results were different for the 100-student group. In this group, although the BK and bootstrap methods found a mediating effect, the Sobel test did not show a significant mediation. In the group of 100 students, a significant mediation effect was only achieved by the finding that asymmetric confidence interval did not include a zero value, which was previously suggested by MacKinnon (2008). It was concluded that for smaller sample sizes, the multiplication of  $ab$  in the Sobel test tends to have an asymmetric distribution, which reduces its power to reveal mediating effects. Therefore, in such cases, the indirect effect should be assessed using the asymmetric confidence interval. This confirms the research results of MacKinnon et al. (1995), MacKinnon et al. (2002), and Mallinckrodt et al. (2006), who all reported that the Sobel test had lower statistical power in small sample sizes compared to the methods that involved the correction of this asymmetry.

Cheung, & Lau (2008) suggested that bootstrapping was particularly useful in small samples when there was no information on distribution or when the assumptions of normality were violated, and similarly, Shrout, & Bolger (2002) reported that bootstrapping was strong when the sample distribution of the mediation effects was non-zero or skewed. MacKinnon et al. (2002) stated that the bootstrap method was stronger in revealing indirect effects than the Sobel test in small samples. In the 100-student sample of the current study, the mediator effect was not significant according to the Sobel test, but significant according to the bootstrap method, which supports the findings of all three studies mentioned above. However, Mallinckrodt et al. (2006) suggested that it is not correct to make a generalization based on a small sample of real data and the bootstrap method may not always provide valid results concerning the mediation effect in small samples.

When the standard error values of the coefficients obtained according to different analysis methods were examined, it was found that this value increased as the study group size became smaller. Although the Sobel test and the bootstrap method produced similar standard errors for larger study groups, the Sobel standard error values were lower for the reference group while bootstrapping resulted in lower standard error for the 100-student group. Thus, it was determined that the tests generally produced less erroneous results in large samples, and bootstrapping provided more reliable results in small samples. In other words, when the sample size is increased or when the bootstrap method is used in small samples, estimation of the indirect effect can be performed with less errors.

In the large study groups, the standard errors of the Sobel test and bootstrap method were close to each other, but both were lower than the standard errors of the coefficients obtained by the BK method. In addition, since the BK method does not directly focus on the multiplication of  $ab$ , the Sobel test and bootstrapping should be preferred. Since the distribution of indirect effect size (multiplication of  $ab$ ) tends to be asymmetric, it is recommended to use asymmetric confidence interval instead of symmetric confidence interval in determination of the mediation by the Sobel test in smaller samples. Due to its lower standard error value, the bootstrap method is preferable particularly for small study groups.

This study included PISA mathematical literacy, classroom climate and mathematics anxiety in the single mediation model to examine the effect of the mediator variable. Future research can investigate different mediator variables affecting science literacy and reading skills. In addition, in this study, the BK, Sobel and bootstrap methods were used. Other researchers can explore the strengths and weaknesses of different mediation analysis methods or undertake comparative studies on these methods by defining different simulation conditions.

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## **Analysis of Scientific Studies on Item Response Theory by Bibliometric Analysis Method**

**Gökhan Aksu<sup>i</sup>**

Adnan Menderes University

**Cem Oktay Güzeller<sup>ii</sup>**

Akdeniz University

### **Abstract**

The purpose of this study is to analyze the studies, which include Item Response Theory among the keywords, available in the Web of Science database between 1980-2018 through bibliometric analysis method. A total of 1,367 academic works has been analyzed. The authors, journals and countries having the highest number of studies in the field and their interrelations on the network in terms of collaboration have been determined through common citation analysis performed using Citespace II software. In addition, a word analysis was also conducted to determine most frequently used concepts in the field. As a result of the study it was found that the authors that have made the biggest contribution to the field are De Ayala, Embretson, Reckase, Reise and Chalmers; in addition, the countries making the biggest contribution are respectively US, Netherland, Canada, Spain and China. The number of citations that US got, which is the country that received the highest number of citations with 687 citations, is 7 times higher than Netherland, which is the second most cited country. Moreover, it was found that the journals that were mostly cited are respectively Psychometrika, Appl Psych Measurement, Item Response Theory, J Edu Measurement and Educ Psychol Measurement. As a result of the word analysis based on most repeated words, which was performed for the purpose of determining most popular subjects on the field, it was found that most frequently used words are item response theory, classical test theory, model, validation, reliability, validity and Rasch model

**Key words:** Item Response Theory, Citespace II, Bibliometric Analysis, Cite, Analysis

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<sup>i</sup> **Gökhan Aksu**, Instructor Dr., Adnan Menderes University, Vocational High School

**Correspondence:** gokhanaksu1923@gmail.com

<sup>ii</sup> **Cem Oktay Güzeller**, Prof. Dr., Akdeniz University, Tourism Faculty

## INTRODUCTION

The foundation of social network analysis goes up to 1960's, but with the methodic and software improvements it became one of the most widely discussed domains again, especially in the last ten years (Barabasi, 2002; Watts, 2004). Social networks have become extremely popular in the past ten years with the significant studies conducted mostly in US after the second half of 20<sup>th</sup> century, accomplishing to attract the attention of scientists from various disciplines, including sociology, epidemiology, economics, computer engineering, telecommunication, communication and others (Dorogovtsev and Mendes, 2002; Wasserman and Faust, 2009).

Social network analysis is an interdisciplinary research area built on the theoretical bases obtained from sociology, anthropology, statistics, mathematics, information sciences, education, psychology and other disciplines over a long time period (Duijin and Vermunt, 2006). Even though the pioneers of social network analysis, such as Moreno (1946), Cartwright (1959) and Barnes (1954) were from origin sociology and social psychology, social network analysis has been renewed after a while using the combined experiences of sociology and graph theory (Mincer and Niewiadomska-Szynkiewicz, 2012). Graph theory, which is used to measure some characteristics of a network by determining its structural properties mathematically (Barnes and Harary, 1983), plays a very important role in social network analysis. In a more generic sense, graph theory is accepted as one of the best and most accurate ways of identifying and representing the structure of a relationship (or some relationships) that connects different members of a social group. Thus, the characteristics of the relationships among the individuals and organizations located in a network can be easily understood (Wasserman and Robbins, 2005). These connections sometimes show the relationships such as affinity and friendship; similarities such as being together and being in the same group; interactions between individuals such as collaboration and communication; or flow of resources such as knowledge and material. In this stage, the members of the network may take different shapes such as individuals, small groups, cities, etc. (Borgatti and Halgin, 2011).

Social network analysis aims to explain, visualize and understand the network structure obtained from the relationships among individuals, objects or units through statistical modelling. Many systems in the nature and in the technology are examples of social network (Crossley, Prell and Scott, 2009). Almost all activities, such as the e-mails that you received, contamination process of a disease, criminal activities, airline flight routes, etc., can be modelled as a social network (Jamali and Abolhassani, 2006). Although the concept of social network was born from the network idea in electric and transportation engineering, the origin of this concept comes from sociology (Freeman, 2004). After the definition of Wasserman and Faust (1994), social network data is seen as a set of actors and the social relationship system characterized by their social connections.

Social network analysis focus on the individuals and other social units, as well as the relationships between them (Martino and Spoto, 2006). Social network analysis is an inter-disciplinary research area aiming to predict the structure of the relationships between social entities and the impact of the relevant structure on other social phenomenon (Butts, 2008). Social network analysis method can be applied in many areas, from the analysis of cognitive processes inside the human mind to the analysis of the wars between countries (Wimmer and Min, 2006). Social network analysis may be a strong tool for psychologists for defining and modelling the relational connections where the behavior occurs and relational dimensions of this behavior. Social network analysis allows researchers to analyzes social structures that are naturally present, such as examining human behaviors (McPherson, Smith-Lovin and Cook, 2001). In addition, social network analysis is a valuable approach for examining the social structure that governs both intragroup and intergroup relationships and the processes lying under this structure. Each unit, called as social actor in a network, may be a person, a group, an organization, a firm, an author or a journal according to the type of the study. Nondirectional connections or directional flows between these units represent the relationships (Wasserman and Faust, 2009). The network structure possesses omni-directional or bi-directional connections among all individuals going from one to the other. If you have limited information about some of the actors in the network or there is no connection between them, the obtained network structure is called as an

ego-centric network (Borgatti, Everett and Johnson, 2013). With social network analysis, which aims to reveal the information present in different databases, researchers may interpret the data that has been produced by different sources more objectively, however they may fail to indicate indirect or intermediate connections between units or individuals (Wölfer, Faber and Hewstone, 2015). Therefore, it is possible to examine the structures at different levels of the social network and investigate their effects.

Visual representation of social networks is quite important in terms of understanding the data in the network and interpreting the results of the analysis more easily (Hogan, Carrasco and Wellman, 2007). Most of the software developed for this purpose have various modules for the visualization of the network. The discovery of the data at hand, the display of the nodes and connections in different designs are realized by visualizing them in different shapes according to their colors, dimensions and other advanced features. Bibliometric analysis is used to statistically and visually interpret the overall picture of a certain discipline and the results obtained by analyzing the scientific works published in this area.

Bibliometric analysis, which has been first emerged in 1917, became popular while famous English scientist Allen Richard has proposed the term “bibliometrics” instead of “statistical bibliography” in 1969 (Liao, Tang, Luo, Li, Chiclana and Zeng, 2018). The nature and direction of the scientific communication in scientific works can be statistically modeled based on the citations made to other sources and the bibliography of the work using bibliometric techniques. For example, bibliometric analysis is used for mapping the relationships between the journals and other scientific communication channels among cited works and determine the flow of the topics between disciplines (Borgman, 1999). In this way, it is possible to determine the cited articles; the scientists who cited them and their disciplines; the journals that are cited more frequently; and the impact of certain articles on subsequent researches through citation analysis (Tsay, 2011). According to the first definition made by Pritchard (1969), bibliometric analysis has been defined as “the application of statistical and mathematical methods to the books and other communication tools”. In bibliometric analysis, which has been defined by Van Leeuwen (2004) as quantitative measurement of qualitative characteristics, the number of citations made to an article is accepted as an indicator of the impact of the article on the scientific community. Bibliometric analysis provides the opportunity to reveal current situation through the analysis of the data belonging to the publications (Martinez, Cobo, Herrera and Herrera-Viedma, 2015). Bibliometrics is involved with the quantitative analysis of particular characteristics of the publications, such as author, subject, publication information, cited sources, etc. Quantitative analysis and statistical techniques are used in bibliometric analysis to define publication patterns in a certain area or in the literature (Abdi, Idris, Alguliyev and Aliguliyev, 2018). Based on the bibliometric data obtained in this way, the establishment of communication process in various disciplines can be investigated. In addition, researchers can identify the impact of a sole author or use bibliometric assessment methods to define the relationship between two or more authors or works (Jain, et al., 2015).

Regarding the history of measurement, there are various globally accepted approaches, including in chronological order Classical Test Theory (CTT), Generalizability Theory (GT) and then Item Response Theory (IRT) (Crocker and Algina, 1986). CTT applications are easier than other measurements theories and the operation load that they require is low, non-complex, thus they were widely used for years and they are still being used (Sünbül and Erkuş, 2013). Item Response Theory, which has been emerged to eliminate some limitations of CTT, is seen as a more advanced theory compared to CTT and it became more popular and preferable in the recent years (Reise, Ainsworth and Haviland, 2005). It is accepted that Item Response Theory provide solution to the problems encountered in test development, creating item pool, developing individual tests, determining item bias, weighting answer options and test equivalence (Hambelton and Swaminathan, 1985). The use of IRT-based models on the large-scale exams such as PISA shows the importance of this theory in terms of measurement and assessment. In PISA exam, especially in Science, Mathematics and Reading tests, plausible values are calculated through IRT-based posteriori distribution curves obtained from the answers that students have given to the other items of the questionnaire (OECD, 2017). For this

reason, IRT became one of the most discussed subjects in measurement and assessment area, especially in the recent years. This study aims to analyze all the articles published on this topic between 1980-2018 in Web of Science database and to determine the authors, journals and subject fields coming to the forefront. By this means, the authors and journals that have performed important works in item response theory were determined, and the popular subjects from past to present were identified. In addition, the countries of the researchers who have worked in this area were determined and the impact of country variable on the performed works was revealed. The study also focused on identifying the words that are frequently repeated in the academic works published in WoS database without putting any constraint, aiming to identify the trendy subjects in the item response theory field.

**Problem statement of the research:** What are the authors, journals, countries and subject fields that were effective in the works performed between 1980-2018?

The sub-problems addressed within the scope of the study are listed below:

1. Who are the most cited authors among the ones working on item response theory?
2. What are the clusters obtained according to the authors who were cited in item response theory?
3. What are the countries that worked on item response theory?
4. What are the most cited journals concerning item response theory?
5. What are the most current topics in item response theory?

## METHODOLOGY

In this study, scientific works published in Item Response Theory area and included in Web of Science (WoS) database were analyzed through bibliometric analysis. Since the study aims to describe all characteristics of an existing situation, it is considered as a scanning model (Frankel and Wallen, 2006). It was also defined as cross-sectional type research because it involves descriptive analysis of the academic works published between 1980-2018, found in WoS database (Büyüköztürk, Kılıç-Çakmak, Erkan-Akgün, Karadeniz and Demirel, 2016).

### Data Collection Process

As a result of the scanning made in Web of Science Core Collection database for the title “Item Response Theory”, the following data were obtained for 1,367 works published in the field: publication years, publication type, publication language, title, country of the authors and number of citations they have received from the sources scanned in Web of Science database. The academic works obtained after this operation were recorded into 3 different data files, each containing 500 scientific works. The distribution of the works according to years is shown in Table 1.

**Table 1. Distribution of Publications by Years**

| Years       | Frequency (N) | Percentage (%) |
|-------------|---------------|----------------|
| 1980 – 1989 | 63            | 4.61           |
| 1990 – 1999 | 105           | 7.68           |
| 2000 – 2009 | 390           | 28.53          |
| 2010 – 2018 | 809           | 59.18          |
| Total       | 1,367         | 100            |

The analysis of 1,367 academic works according to type showed that the majority of the works are articles. The distribution of the works according to type is shown in Table 2.

**Table 2. Distribution of Publications According to Type**

| Type of Publication | f     | %     | Type of Publication | f  | %    |
|---------------------|-------|-------|---------------------|----|------|
| Article             | 1,029 | 75.27 | Correction          | 11 | 0.80 |
| Meeting summary     | 151   | 11.05 | Software critics    | 5  | 0.37 |
| Proceedings book    | 122   | 8.92  | Book section        | 2  | 0.14 |
| Book Review         | 55    | 4.02  | Letter              | 2  | 0.14 |
| Editorial text      | 15    | 1.10  | Note                | 2  | 0.14 |
| Critics             | 12    | 0.88  | Discussion          | 1  | 0.07 |

After determining the academic works performed in item response theory area, data analysis was started.

### **Data Analysis**

First of all, academic works obtained in electronic environment were analyzed in terms of their author, title, summary and source. Then, all bibliometric data, including the name of the authors and publications, title, source of the document, publication year, number of publications, number of citations, and type of the article were gathered together and saved as text document (with .txt extension). The data was transferred to Citespace II software and was analyzed to obtain results for the specified purposes. Citespace II is a Java application, which can be accessed free of charge, used to visualize and analyze the trends and models in the literature (Chen, 2006). Citespace II is a software that facilitates researchers' qualitative and quantitative work on scientific subject areas (Liu, Liu and Zheng, 2014).

The software especially focuses on finding the intellectual milestones and critical points in the development of a subject area or a discipline. CiteSpace software performs structural and temporal analysis of various networks obtained from scientific publications, such as collaboration networks, author associations and publication association (Synnestevedt, Chen and Holmes, 2005). The results obtained from Citespace II are in two different forms; cluster view and time-zone view. In time-zone view, the variation of common citations over time is visualized, whereas cluster view focuses on cluster divisions obtained from common citations over the defined time interval (Liu and Shen, 2013). The following steps were followed during the analysis of the data in Citespace software:

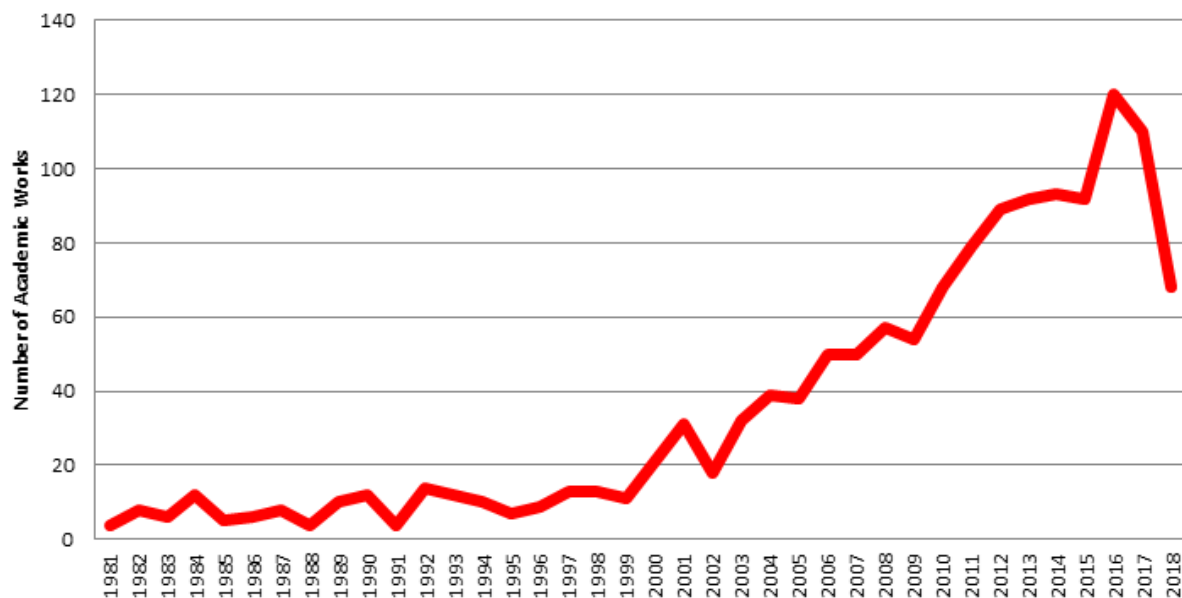
1. Based on bibliometric records, a new project file was formed.
2. Data files to be analyzed were loaded into the program.
3. The time period to be analyzed was defined by entering 1980 and 2018 as the starting and ending date.
4. For each time interval, threshold level was set as mostly cited 30 works.
5. “*Cited references*”, “*cited author*” and “*cited journal*” options were activated for the nodes to be obtained as a result of the analysis.
6. Analysis results were separately reported in the form of cluster view and time zone view.

The names of some authors, journals and countries are represented by circle, line or color. The circle around the examined author, journal or country indicates citation history of a particular

reference, whereas the thickness of the circle shows the number of citations over a defined time period. The number of references increases as the circle gets bigger. The line between two circles indicates common reference sources, present in both citations. The thickness of this line shows the strength of the common citation, whereas its color indicates the time of the common citation (Liu and Shen, 2013).

## FINDINGS

In the study, the findings concerning bibliometric analysis of the works about Item Response Theory included in Web of Science (WoS) database between 1980-2018 have been obtained first. In this regard, during common citation analysis of Item Response Theory, a total of 21,977 reference data belonging to 1,367 publications, in the form of article, discussion, book section and research note, have been analyzed. The modularity value of the obtained network was calculated as 0.833 and mean silhouette value as 0.294. According to mean silhouette value, which indicates the similarity of the elements in a cluster, it is observed that academic works included within the scope of the study are well-clustered. High modularity value means that there are strong connections among the nodes in the modules but the connection between the nodes of different modules are sparse (Yang, 2008). The distribution of the academic works performed on Item Response Theory between 1980-2018 according to years is shown in Figure1.

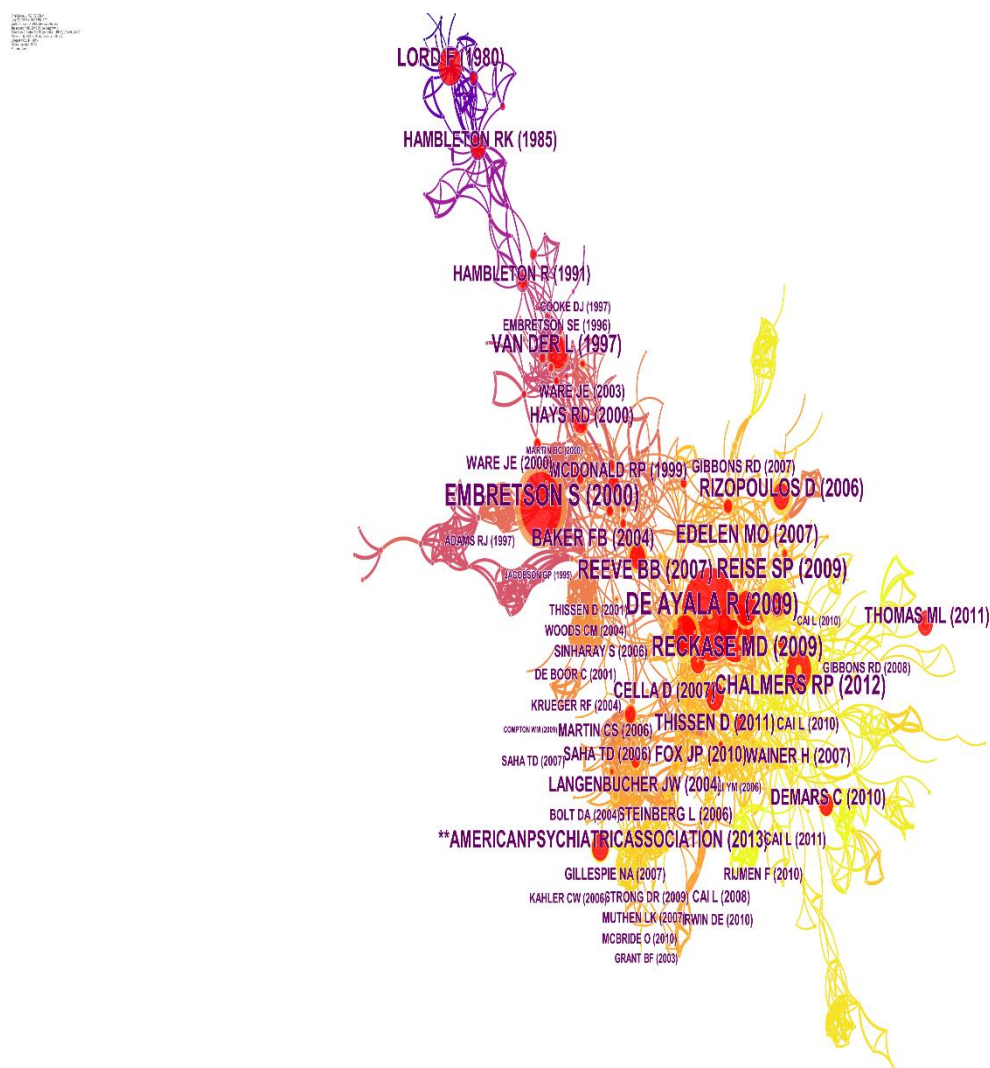


**Figure 1. Distribution of the works in WoS database according to years**

Regarding Figure 1, it can be seen that there is an increase on the number of works performed on IRT especially in 2000's. It was found that after 2000, the number of performed works was constantly increased, with a monotonous increase up to present.

### **Publications' Common Citation Network**

Figure 1 shows the network of the works with 15 or more citations. Since the threshold value was set as 15, less cited works were not included in the network.



**Figure 1. Network Structure of the Publications with Common Citation**

The network shown in Figure1 has a total of 802 nodes and 2,295 connections. The density of the network was found to be 0.0071, Modularity value is 0.8336 and Mean silhouette value is 0.3004. 1,346 academic woks were divided into 123 clusters. The citation values of top 10 works and their clusters are displayed in Table 1.











**Table 1. Top 10 sources with highest citation**

| Number of Citation | Source  | Cluster# |
|--------------------|---|----------|
| 71                 | de Ayala R, 2009, THEORY PRACTICE ITEM, 0, 0  | 3        |
| 64                 | Embretson S, 2000, ITEM RESPONSE THEORY, 0, 0 | 11       |
| 45                 | Reckase MD, 2009, STAT SOC BEHAV SC, 0, 1     | 3        |
| 41                 | Reise SP, 2009, ANNU REV CLIN PSYCHO, 5, 27   | 3        |
| 38                 | Chalmers RP, 2012, J STAT SOFTW, 48, 1        | 12       |
| 37                 | Reeve BB, 2007, MED CARE, 45, 0               | 9        |
| 30                 | Edelen MO, 2007, QUAL LIFE RES, 16, 5         | 3        |
| 30                 | Lord F, 1980, APPLICATIONS ITEM RE, 0, 0      | 4        |

|    |   |   |
|----|---|---|
| 29 | van der L, 1997, HDB MODERN ITEM RESP, 0, 0 | 2 |
| 29 | Rizopoulos D, 2006, J STAT SOFTW, 17, 1     | 3 |

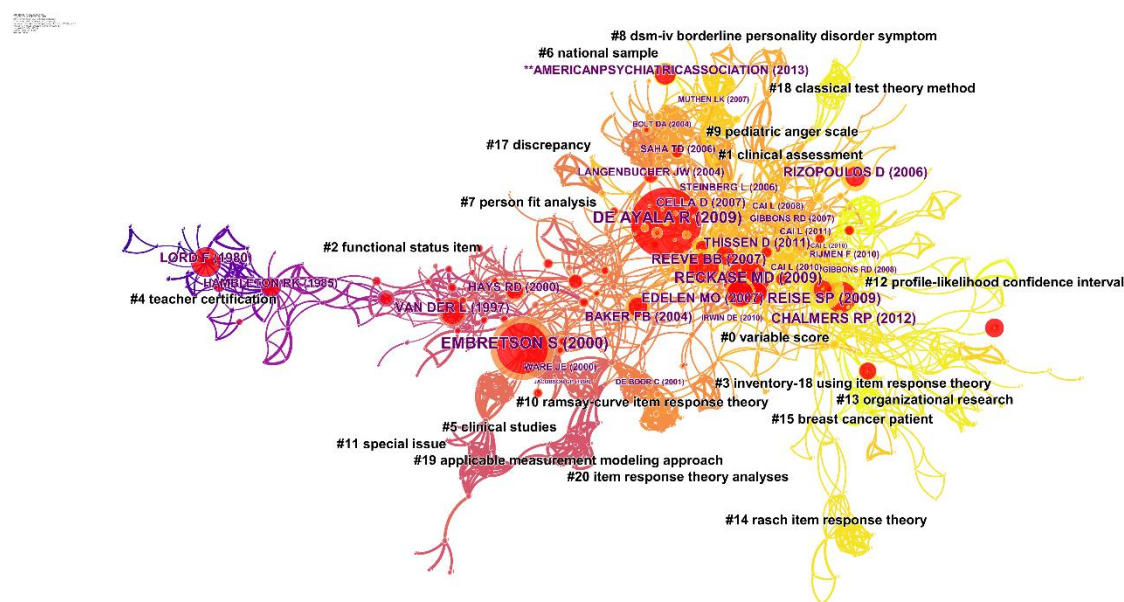
According to the data in Table 1, the most cited source is the work performed by de Ayala, R. (2009), belonging to cluster 3, with 71 citations. Second most cited work is the work performed by Embretson, S. (2000), belonging to cluster 11, with 64 citations. Third most cited work is the work performed by Reckase, M.D. (2009) with 45 citations. It can be seen that this work and the works of de Ayala, R. (2009), Reise, S.P. (2009), Edelen, M.O (2007) Van der L. (1997) and Rizopoulos (2006) belong to the same cluster. Hence, it can be seen from Figure 1 that these works are positioned very close to each other on the 2-dimensional map. Centrality values could not be calculated due to the intensity of the network. But as can be seen from the network, the works performed by de Ayala, Reckase, Embretson, Reise and Chalmers are the fundamental works that get highest citation in item response theory area. In addition, the results of burst analysis, which have been performed to see the most popular years of the works performed by different researchers, are shown in Table 2. Top 10 bursts among 55 citation bursts obtained from the analysis are shown in the Table.

**Table 2. Citation Burst Values of the Publications Cited by the Works in the Database**

| Burst | Source        | Cluster# | Start | End  | 1980-2018  |
|-------|---------------|----------|-------|------|--|
| 28.75 | Embretson S.  | 11       | 2002  | 2008 |    |
| 20.20 | Lord F.       | 4        | 1980  | 1988 |   |
| 14.85 | van der L.    | 2        | 1998  | 2005 |  |
| 13.73 | Chalmers RP.  | 12       | 2016  | 2018 |  |
| 13.27 | Hambleton RK. | 4        | 1987  | 1993 |  |
| 13.24 | de Ayala R.   | 3        | 2012  | 2018 |  |
| 11.20 | Hambleton R.  | 2        | 1992  | 1999 |  |
| 10.50 | Rizopoulos D. | 3        | 2010  | 2014 |  |
| 9.29  | Reeve BB.     | 9        | 2010  | 2015 |  |
| 8.82  | Baker FB.     | 7        | 2006  | 2012 |  |

As can be seen from Table 2, the work with the highest citation burst value is the work performed by Embretson S. (2000), having a value of 28.75, belonging to cluster 11, between 2002 and 2008. It is followed by the work performed by Lord, F. (1980) with 20.20 citation burst value. It can be seen that this work attracted attention until 1988, but it did not get much citations in the following years. The works with the third highest burst value with 14.85 has been performed by Van der L. (1997), which was popular from 1998 to 2005 but it lost its importance in the following years. The works performed by Chalmers (2012) has the fourth highest citation burst value and it was very popular between 2016-2018. The results displayed in Table 2 give information about the popularity of the works according to years.

After this operation, cluster analysis was performed to determine the clusters using common citation network. The topic clusters obtained from the network are displayed in Figure 2.



**Figure 2. Clusters Obtained Based on the Works that Received Common Citations**

As can be seen from Figure 2, the works performed by Lord, F. (2000) and Hambleton, R.K. (1985) belong to the cluster number 4, called as teacher certification. Similarly, the work called American Psychiatric Association (2013) belong to the cluster number 6, called as national sample. The names of top 7 clusters obtained from Citespace software using different clustering algorithms, their mean silhouette values and cluster sizes are displayed in Table 3.

**Table 3. Statistics of the Clusters Obtained as a Result of Common Citation Analysis**

| Cluster | Size | Mean Silhouette | TFIDF                         | LLR                                   | MI   | Citation Year |
|---------|------|-----------------|-------------------------------|---------------------------------------|--|---------------|
| 0       | 67   | 0,752           | item response theory          | variable score                        | psychometric properties, short form                      | 2009          |
| 1       | 66   | 0,735           | item response theory          | clinical assessment                   | psychometric properties, short form                      | 2007          |
| 2       | 51   | 0,900           | item response theory          | functional status item                | self-report measure, adult attachment                    | 1994          |
| 3       | 46   | 0,838           | item response theory          | Inventory, using item response theory | psychometric properties, short form, self-report measure | 2007          |
| 4       | 41   | 0,966           | item response theory          | teacher certification                 | psychometric properties, short form, self-report measure | 1983          |
| 5       | 40   | 0,850           | item response theory          | clinical studies                      | psychometric properties, short form, self-report measure | 2000          |
| 6       | 38   | 0,911           | item response theory analysis | national sample                       | psychometric properties, short form, self-report measure | 2004          |
| 7       | 37   | 0,737           | item response theory          | person fit analysis                   | psychometric properties, short form, self-report measure | 2001          |

TFIDF: Term Frequency by Inversed Document Frequency, LLR: Log-Likelihood Ratio, MI: Mutual Information

Mean silhouette value, which varies between -1 and +1, shows the extent of an object belonging to its own cluster and high silhouette value means that the object is strongly matched with its own cluster, and weakly with the neighbor cluster. Accordingly, it can be seen that cluster 6, 4, 2, 5, 3, 0, 7 and 1 have more homogenous structures compared to the others. In addition, LLR was found to be the most suitable method in determining the names of the clusters (Rousseeuw, 1987).

### Author Common Citation Network

Authors with 50 or more citations are displayed in the network that represents the important authors worked on item response theory. The network consists of 361 nodes and 2,401 connections. The density of the network was computed as 0.0369, modularity values as 0.3898 and mean silhouette value as 0.2315. It was found that there are 29 clusters in the author's network. The authors having top 10 highest number of citations are displayed in Table 4.

**Table 4. Mostly Cited Authors**

| Number of Citations | Source                       | Cluster number# |
|---------------------|------------------------------|-----------------|
| 421                 | Lord FM, 1981, SO, 0, 0      | 0               |
| 392                 | Thissen D, 1984, SO, 0, 0    | 0               |
| 380                 | Samejima F, 1987, SO, 0, 0   | 0               |
| 314                 | Embretson S, 1986, SO, 0, 0  | 2               |
| 291                 | Hambleton RK, 1982, SO, 0, 0 | 0               |
| 281                 | Bock RD, 1982, SO, 0, 0      | 4               |
| 231                 | Reise SP, 1993, SO, 0, 0     | 4               |
| 220                 | Baker FB, 1984, SO, 0, 0     | 0               |
| 201                 | Hambleton R, 1992, SO, 0, 0  | 0               |
| 186                 | Rasch G, 1986, SO, 0, 0      | 3               |

According to Table, mostly cited three authors are Lord (1981), Thissen (1984) and Samejima (1987) and they are in the same cluster. Embretson (1986), who received 314 citation is in cluster 2, whereas Bock (1982) and Reise (1993) who got 281 and 231 citations respectively are in cluster 4. Log Likelihood Ratio method was used for naming the clusters. The network structure, which shows the results more understandably, is shown in Figure 3.



**Figure 3. Author Common Citation Network**

The yellow circles in the network, indicate the centrality of the actors, whereas red circles indicate citation bursts. Centrality degrees, which measure the significance of mostly cited authors in the network and show the actors located at the center, are displayed in Table 5 (Borgatti, 2006).

**Table 5. Centrality Degrees of Cited Authors and Cluster Numbers**

| Centrality | Reference                                       | Cluster number # |
|------------|---|------------------|
| 0.16       | Birnbaum A, 1982, SO, 0, 0                      | 5                |
| 0.12       | Bock RD, 1982, SO, 0, 0                         | 4                |
| 0.11       | Thissen D, 1984, SO, 0, 0                       | 0                |
| 0.10       | Reise SP, 1993, SO, 0, 0                        | 4                |
| 0.10       | Mcdonald RP, 1990, SO, 0, 0                     | 1                |
| 0.09       | Mislevy RJ, 1989, SO, 0, 0                      | 4                |
| 0.08       | Andrich D, 1986, SO, 0, 0                       | 5                |
| 0.07       | Holland PW, 1987, SO, 0, 0                      | 2                |
| 0.07       | Reckase MD, 1985, SO, 0, 0                      | 0                |
| 0.06       | **American Psychiatric Association, 1997, SO, 0 | 2                |

Regarding the centrality of the authors, it can be seen that Birnbaum (1982) is the author with the biggest impact in the network with 0.16. It was found that this author and Andrich (1986) are in cluster 5. The author with the second highest centrality is Bock (1982) with 0.12 and he is in the cluster 4 along with Mislevy (1989). Thissen (1984), who has the third biggest centrality with 0.11, was found to belong to initial cluster 0 along with Reckase (1985).

Citation burst were identified for 95 authors covered in WoS database, who worked on item response theory. Citation burst of top 10 authors and the years of the bursts are displayed in Table 6.

**Table 6. Citation Burst Statistics of the Authors**

| Burst | Source              | Cluster# | Start | End  | 1980-2018 |
|-------|---------------------|----------|-------|------|-----------|
| 37.71 | Lord F, 1981,       | 0        | 1980  | 1997 |           |
| 23.75 | Cai L, 2012,        | 1        | 2014  | 2018 |           |
| 18.56 | de Ayala R, 2012    | 3        | 2012  | 2018 |           |
| 16.41 | Chalmers RP, 2016,  | 1        | 2016  | 2018 |           |
| 15.36 | Hulin CL, 1982,     | 0        | 1982  | 2001 |           |
| 15.03 | Wingersky MS, 1983, | 0        | 1983  | 2000 |           |
| 14.70 | Reeve BB, 2010      | 2        | 2010  | 2015 |           |
| 13.93 | Edelen MO, 2009,    | 2        | 2014  | 2018 |           |
| 12.59 | Lord FM, 1981       | 0        | 1980  | 1992 |           |
| 12.01 | Rizopoulos D, 2010, | 1        | 2010  | 2018 |           |

According to Table 6, the author with the highest citation burst value is Lord, F. (1981), with 37.71. The work, whose effective period was between 1980-1997, belongs to initial cluster 0 and it had no citation burst after 1997. It can be seen that the author with the second highest citation burst value is Cai, L. (2012), with 23.75 and he received numerous citations between 2014-2018. Similarly, it can be seen that the author with the third highest citation burst value is De Ayala, R. (2012), with

18.56 and he got the citation burst in recent years. The review of Table 6 as a whole, reveals that Chalmers, R.P. (2016), Reeve, B.B. (2010), Edelen, M.O. (2009) and Rizopoulos (2010) got citation bursts after 2010, whereas Hulin, C.L. (1982), Wingersky, M.S. (1983) and Lord, F.M. (1981) have been popular from 1980's to 2000's, afterwards they lost their popularity as can be seen from the lack of citation.

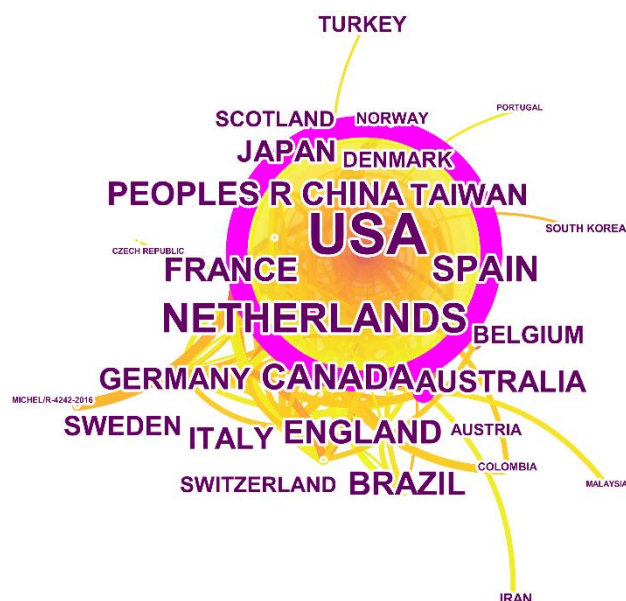
### Country Collaborations

Country collaborations were also analyzed within the scope of the study in order to reveal the countries that have been contributed to the academic works performed in item response theory. It was found that the network obtained as a result of the analysis consists of 29 nodes and 122 connections. The density of country collaboration network is 0.3005, its modularity value is 0.2212 and mean silhouette value 0.3359. The total number of citations received by the countries and the years of these citations are displayed in Table 7.

**Table 7. Number of Citations for Country Collaborations and Centrality Values**

| Number of Citations | Centrality | Source Country  | Year |
|---------------------|------------|-----------------|------|
| 687                 | 0.69       | US              | 1982 |
| 97                  | 0.17       | NETHERLANDS     | 1987 |
| 57                  | 0.09       | CANADA          | 1992 |
| 49                  | 0.12       | SPAIN           | 2001 |
| 43                  | 0.03       | PEOPLES R CHINA | 2008 |
| 41                  | 0.08       | ENGLAND         | 2004 |
| 36                  | 0.00       | BRAZIL          | 2012 |
| 35                  | 0.16       | FRANCE          | 2004 |
| 30                  | 0.00       | JAPAN           | 2001 |
| 30                  | 0.28       | AUSTRALIA       | 2005 |
| 29                  | 0.03       | ITALY           | 2012 |
| 28                  | 0.04       | GERMANY         | 2003 |

Regarding Table 7, the country with the highest citation in item response theory area is US with 687 citations; the county with highest centrality is also US with a value of 0.69. Accordingly, it can be seen that US is well ahead as the leader country. It was found that the country with the second highest citation is Netherland with 97 citations, which also have the second highest centrality with 0.17. The third most cited country Canada has 57 citations and 0.09 centrality value, whereas the centrality value of Spain, which received 49 citations, is 0.12 and centrality value of Australia, which get 30 citations, was found to be 0.28. Moreover, centrality values of Japan and Brazil were computed as 0.00 and it was concluded that both of them are not active in IRT field. The network structure formed for country collaborations for easier interpretation are displayed in Figure 4.



**Figure 4. Country Collaborations**

As can be seen from Figure 4, the US makes the highest contribution to the field in terms of response theory, followed by Netherlands, Canada, Spain and China. Citation burst values of 6 countries for which citation burst was detected and effective years of the bursts are shown in Table 7.

**Table 7. Citation Burst Statistics according to Countries**

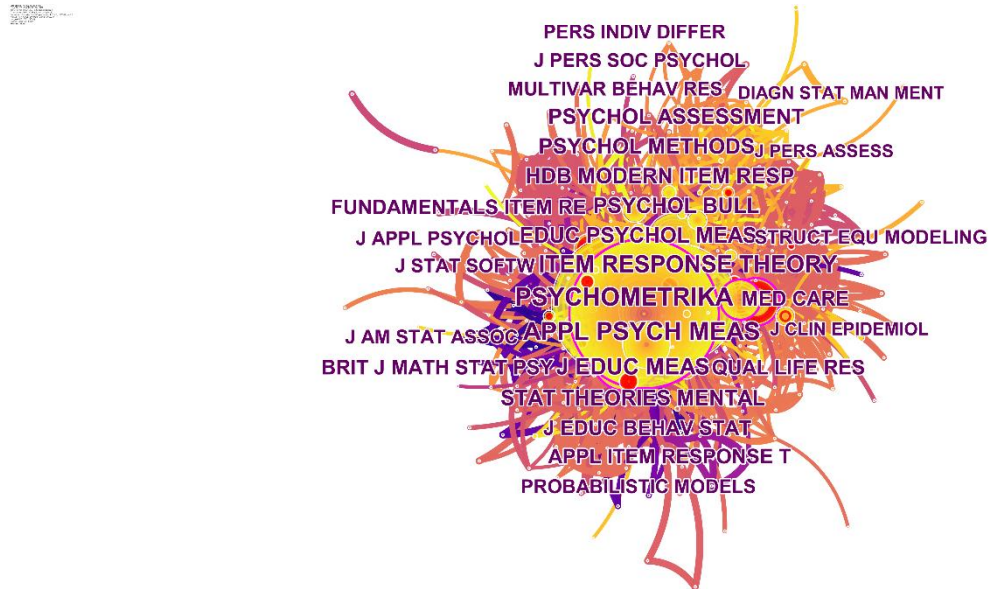
| Burst | Source          | Start | End  | 1980-2018 |
|-------|-----------------|-------|------|-----------|
| 5.99  | ITALY           | 2014  | 2018 |           |
| 5.97  | PEOPLES R CHINA | 2015  | 2018 |           |
| 5.08  | BRAZIL          | 2012  | 2018 |           |
| 4.08  | FRANCE          | 2014  | 2015 |           |
| 3.88  | TAIWAN          | 2004  | 2009 |           |
| 3.73  | DENMARK         | 2003  | 2006 |           |

As can be seen from Table 6, the country with the highest citation bursts value was found to be Italy with 5.99. The work that covers 2014-2018 period received considerable citations in recent years. The country with the second highest citation bursts value was found to be China with 5.97, which is effective between 2015-2018. The country with the third highest citation bursts value is Brazil with 5.08, which was effective between 2014-2015.

### Journal Common Citation Network

Journal common citation network was formed based on the journals in which the academic works covered in WoS database have been published. The network obtained at the end of the analysis include the journals with 100 or more citations. There are 312 nodes and 1,988 connections in the network. The density the network was found to be 0.041, Modularity value is 0.4372 and Mean

silhouette value is 0.2193. The network was divided into 29 clusters in terms of common characteristics of the journals through LLR estimation method. The network structure of the journals that published significant works made on IRT is displayed in Figure 5.



**Figure 5. Journal Common Citation Network**

Regarding Figure 5, it can be seen that the journals that come to forefront are Psychometrika, Appl PM, Item Response Theory and Educational Measurement. The citations that the journals have received and descriptive statistics of the clusters based on these citations are shown in Table 8.

**Table 8. Mostly Cited Journals**

| Number of Citations | Centrality | Source  | Cluster number# |
|---------------------|------------|---|-----------------|
| 671                 | 0.09       | Psychometrika, 1982, PSYCHOMETRIKA, 0, 0      | 0               |
| 669                 | 0.12       | Appl PM, 1982, APPL PSYCH MEASUREMENT, 0, 0   | 0               |
| 539                 | 0.09       | Item RT, 1984, ITEM RESPONSE THEORY, 0, 0     | 0               |
| 368                 | 0.15       | J EM, 1982, J EDUC MEAS, 0, 0                 | 0               |
| 331                 | 0.10       | Educ PM, 1982, EDUC PSYCHOL MEAS, 0, 0        | 0               |
| 292                 | 0.11       | Psychol B, 1986, PSYCHOL BULL, 0, 0           | 2               |
| 260                 | 0.03       | Stat TM, 1989, STAT THEORIES MENTAL, 0, 0     | 0               |
| 258                 | 0.04       | Hdb MIR, 1997, HDB MODERN ITEM RESP, 0, 0     | 0               |
| 249                 | 0.05       | Psychol M, 1999, PSYCHOL METHODS, 0, 0        | 4               |
| 245                 | 0.07       | Psychol A, 1997, PSYCHOL ASSESSMENT, 0, 0     | 2               |
| 220                 | 0.11       | Med C, 2000, MED CARE, 0, 0                   | 1               |
| 219                 | 0.12       | Qual LRES, 2000, QUAL LIFE RES, 0, 0          | 1               |
| 208                 | 0.09       | Brit JMSPSY, 1983, BRIT J MATH STAT PSY, 0, 0 | 0               |
| 162                 | 0.10       | Multivar BRES, 1999, MULTIVAR BEHAV RES, 0, 0 | 4               |

According to Table 8, it can be seen that the five journals with highest citations are respectively Psychometrika (N=671), Appl PM (N=669), Item Response Theory (N=539), J EM (N=368) and Educational measurement (N=331). According to centrality, the journals that make most effective works in the field are J EM (m=0.15), Appl PM (m=0.12), Qual LRES (m=0.12), Psychol

Bulletin ( $m=0.11$ ) and Med C ( $m=0.11$ ). Top five journals with highest citations are in the same cluster whereas Med C and Qual LRES journals, which have very similar centrality values, are in cluster 1. In addition, the analysis results showing top 10 journals with the highest citation bursts among the 96 journals, which were identified as a result of the citation burst analysis, and the years of citations are displayed in Table 9.

**Table 9. Citation Burst Values of the Journals Cited by the Works Covered in the Dataset**

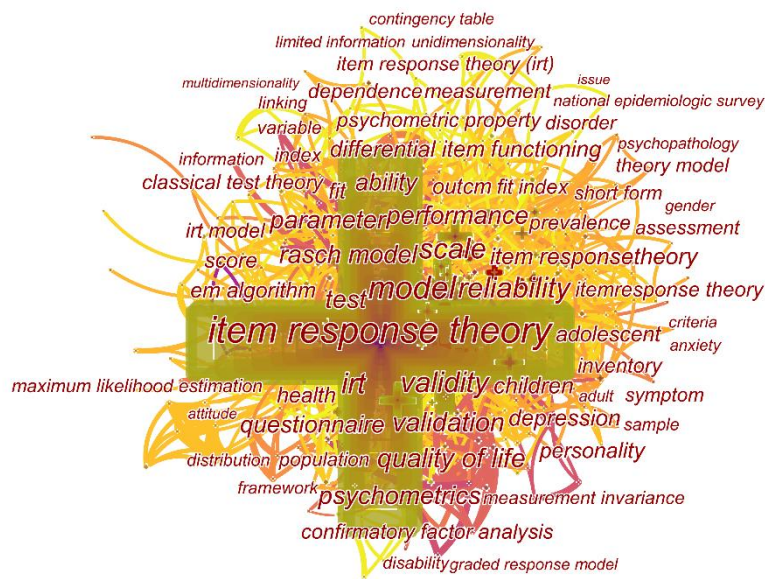
| Burst | Source   | Cluster | Start | End  | 1980-2018 |
|-------|--|---------|-------|------|-----------|
| 46.11 | Applications IRE, 1981. (Applications Item Response)             | 0       | 1980  | 1997 |           |
| 28.95 | Statistical T, 1981. (Statistical Theories)                      | 0       | 1980  | 1997 |           |
| 25.92 | J SS, 2010. (Journal of Statistical Software)                    | 0       | 2014  | 2018 |           |
| 20.97 | THESIS, 2015.  | 0       | 2015  | 2018 |           |
| 19.53 | Multilog UG, 1993. (Multilog Users Guide)                        |         | 1993  | 2009 |           |
| 17.00 | R LENVSC, 2011. (R Language and Environment Statistical Company) | 0       | 2013  | 2018 |           |
| 16.53 | Theory PI, 2010. (Theory Practice Item)                          | 0       | 2012  | 2018 |           |
| 14.35 | Struct EQU, 2004. (Structural Equaling Modeling).                | 4       | 2015  | 2018 |           |
| 12.54 | J ES, 1982. (Journal of Educational Statistics)                  | 0       | 1982  | 1996 |           |
| 12.44 | PSYCHOMETRIKA, 1982.   | 0       | 1982  | 1996 |           |

Regarding Table 9, it can be seen that the biggest citation burst is performed by Applications IRE with 46.11 citation burst value. This journal, which was quite popular between 1980-1997, belongs to cluster zero (#0). The journal with the second highest citation burst is Statistical Theories, with 28.95 citation burst value. This journal has been quite popular between 1980-1997 and it is in the same cluster with Applications IRE. It was found that J Stat Soft, which has 25.92 citation burst value has been popular between 2014-2018 and it belongs to the same cluster with the top 2 journals. Similarly, the journal called Thesis was popular in 2015 and afterwards with 20.97 citation burst value, and it is in the same cluster with the top three journals having the highest citation burst.

### Word analysis

A word analysis was performed to identify the words that were frequently used in the works concerning item response theory without dividing them into subcategories such as author, journal, and country. As a result of the analysis, which has been performed based on the frequency of the words without putting any restriction, the words repeated 20 or more times were identified. The network that has been formed accordingly has 378 nodes and 1,999 connections. The density of the network was found to be 0.0281, Modularity value is 0.456 and Mean silhouette value is 0.4992. The network was

divided into a total of 13 clusters. The citation values of top 10 works and their clusters are displayed in Table 1. The word cloud of mostly repeated words is shown in Figure 6.



**Figure 6. Word Cloud of Mostly Repeated Words**

The number of repetitions of each word, the years of repetition and centrality values of the words are displayed in Table 10, allowing statistical interpretation of visual results.











**Table 10. Statistics about Mostly Repeated Words**

| Number of Citations | Centrality | Word                          | Year |
|---------------------|------------|-------------------------------|------|
| 436                 | 0.08       | item response theory          | 1994 |
| 192                 | 0.05       | model                         | 1993 |
| 107                 | 0.06       | validity                      | 1999 |
| 95                  | 0.09       | reliability                   | 2000 |
| 93                  | 0.06       | IRT                           | 2003 |
| 91                  | 0.03       | scale                         | 2003 |
| 67                  | 0.03       | validation                    | 2004 |
| 65                  | 0.04       | quality of life               | 2003 |
| 59                  | 0.08       | Rasch model                   | 2001 |
| 59                  | 0.08       | test                          | 2000 |
| 56                  | 0.06       | performance                   | 1996 |
| 52                  | 0.09       | parameter                     | 1999 |
| 52                  | 0.04       | psychometrics                 | 2005 |
| 47                  | 0.08       | questionnaire                 | 2000 |
| 43                  | 0.03       | ability                       | 2000 |
| 39                  | 0.02       | children                      | 1999 |
| 37                  | 0.03       | item response theory          | 2001 |
| 35                  | 0.10       | differential item functioning | 2000 |
| 34                  | 0.03       | depression                    | 2007 |
| 33                  | 0.05       | EM algorithm                  | 2001 |
| 31                  | 0.07       | fit                           | 1999 |
| 27                  | 0.07       | confirmatory factor analysis  | 2008 |
| 23                  | 0.07       | inventory                     | 1999 |
| 23                  | 0.06       | measurement                   | 2006 |

|    |      |                               |      |
|----|------|-------------------------------|------|
| 23 | 0.05 | classical test theory         | 2005 |
| 18 | 0.06 | maximum likelihood estimation | 1998 |
| 13 | 0.06 | distribution                  | 2005 |

Regarding Table 10, it can be seen that the words mostly repeated in the academic works concerning item response theory are respectively; item response theory, model, validity, reliability, IRT, scale and validation. Accordingly, the review of most frequently used words revealed that item response theory is used to determine the validity and reliability of the models built for measurement purposes, as well as their relationship with classical test theory. It can be seen from subsequent words that IRT is used for the validation of the scales and tests and Rasch model was considerably repeated in this stage. Since usage frequencies of the words “scale”, “questionnaire” and “psychometric” are very close to each other, it can be concluded that IRT-based methods are employed for determining psychometric characteristics of measurement tools. Similarly, the frequency values of “ability”, “children” and “item response theory” words are following each other, which was taken as an indicator that item response theory is used in the skill estimations of the students. A total of 16 citation bursts were identified, top 10 words with highest citation bursts and their years of popularity are displayed in Table 11.

**Table 11. Citation Burst Values of the Words Cited by the Works Covered in the Dataset**

| Word                          | Year | Burst  | Start | End  | 1980-2018  |
|-------------------------------|------|--------|-------|------|--|
| model                         | 1980 | 7.7895 | 1980  | 2002 |    |
| IRT                           | 1980 | 6.2823 | 2003  | 2007 |   |
| reliability                   | 1980 | 6.0093 | 2000  | 2008 |  |
| test                          | 1980 | 5.9689 | 2000  | 2009 |  |
| validity                      | 1980 | 5.05   | 2007  | 2008 |  |
| ability                       | 1980 | 4.6252 | 2003  | 2007 |  |
| validation                    | 1980 | 4.5118 | 2016  | 2018 |  |
| Rasch model                   | 1980 | 4.4726 | 2001  | 2004 |  |
| outcome                       | 1980 | 4.1689 | 2014  | 2015 |  |
| national epidemiologic survey | 1980 | 4.1437 | 2009  | 2011 |  |

Regarding Table 11, it can be seen that the word with the highest citation burst value is model and it was the most popular word in item response theory between 1980-2002. The word with the second highest citation burst was found to be IRT, which was considerably repeated in WoS database between 2003-2007. The word reliability, which has been emerged first in 1980's, has the third highest citation burst value and it was popular between 2000-2009. The word test that has the fourth highest citation burst value has been emerged in 1980, but it became very popular between 2000-2009. Similarly, the word validity that has been emerged in 1980's, made a citation burst between 2007-2008. The word ability was very popular between 2003-2007. As can be seen from the table, the popularity of most frequently used words in the subject of item response theory lasted very short and the popular concepts in the field varied according to years.

## RESULTS, DISCUSSION AND SUGGESTIONS

This study was performed to determine the outstanding authors, journals, countries and subject areas of the works performed in Item Response Theory area through bibliometric analysis of the

academic works published in WoS database. 1,367 academic works published between 1980-2018 have been analyzed through Citespace II software and the outcomes were reported both graphically and statistically.

As a result of the findings obtained in the study, the authors who get the highest number of citations in the field are De Ayala, Embretson, Reckase, Reise and Chalmers, whereas the authors that created biggest citation bursts in the field are respectively Embretson, Lord and Van der L. A common citation analysis was performed based on the mostly cited authors and a total of 7 clusters were obtained, named as variable score, clinical assessment, functional status item, inventory, teacher certification, clinical studies, and national sample. Regarding the countries that made contribution to the field, it was found that US, Netherland, Canada, Spain and China are the countries that performed the highest number of works, respectively. Regarding citation burst values of the countries, the biggest bursts were created by Italy, China and Brazil. The top five organizations that made the highest number of works in terms of journal were found to be Psychometrika, Appl Psych Measurement, Item Response Theory, J Edu Measurement and Educ Psychol Measurement. Regarding citation burst values of the journals, Application Item Response, Statistical Theories and J Statistical Software are at the top three. Moreover, as a result of the word analysis conducted on the works made in the field, it was found that mostly repeated words are item response theory, classical test theory, model, validating, reliability, validity and Rasch model.

In a similar study conducted by Glanzel (2012), the researcher has determined 4 subject areas and has compared the number of clusters emerged in two time periods, 1999-2003 and 2004-2008. The number of clusters were found to be different in two time periods; country collaborations were also analyzed in these 4 different subject areas to reveal the countries that have made the highest number of collaborations in each field. As a result of the study it was found that US is the country with the highest contribution in all four subject areas.

In another similar study conducted by Liu and Shen (2013), the change of academic works concerning idioms according to time, countries and universities have been examined through bibliometric analysis method. Citespace was used in the study where mostly cited authors and the clusters based on them have been determined. As a result of the study, it was found that the academic works performed since 1960 until present were divided into a total of 7 clusters.

In the study conducted by Martinez, Cobo, Herrera and Herrera-Viedma (2015), the works published in 25 journals between 1930-2012 have been scanned in WoS and Journal Citation Reports databases and they have been analyzed through bibliometric analysis method. As a result of the study, in which Science Mapping software has been used, a total of 8 clusters were identified, including children (mostly worked topic), social services, health services, violence, women, HIV/AIDS, social service specialists and education. Moreover, the analyses have been reperformed in order to see the variation of the clusters in three different time periods, namely 1930-1989, 1990-2002 and 2003-2012. As a result, it was found that mostly cited subject fields have been varied in different time periods.

Yalçın and Yayla (2016) have analyzed 543 academic works on Technological Pedagogical Content Knowledge, published between 2008-2015 in WoS and Scopus through bibliometric analysis method using Citespace II software. Most cited authors, clusters obtained based on these authors, most cited articles and clusters obtained based these articles have been determined. As a result of the study it was found that the studies performed in this area have been increased from past to present. In addition, the authors, journals and countries that realized the highest number of works have been reported through burst analysis according to time.

It can be seen that studies involving bibliometric analysis method became popular in recent years. In a similar study performed by Zhang, Huang, Quing, Li and Tian (2017) the academic works about remote sensing, published in WoS, Scopus and Google Scholar databases between 2010-2015 have been examined through bibliometric analysis method. In this study, they have compared the works related to remote sensing with the works performed in other areas, and they have identified the

countries and institutes that have mostly contributed to the field. In addition, they have attempted to determine popular topics of the field through word query.

Güzeller and Çeliker (2017) have analyzed 703 academic works in gastronomy area between 1970-2017 using Citespace II software. As a result of the analysis of the works in WoS database in gastronomy subject field, it was found that US plays a key role in country collaborations, the journal and author with the highest citation burst is Journal of Culinary Science & Technology, and Herve This. In addition, it was found that the works that directed the field have been realized between 2003-2005.

The data set used in this study has been formed based on 1,367 academic works indexed in WoS database, between 1980-2018. It is believed that the most extensive data set has been used compared to the works in which similar methods had been used, aiming to reveal the general status of the field. It is thought that this study will set an example for future studies in terms of the performance of the analysis. In addition, it can be seen as a pioneer in realizing the works based on bibliometric analysis method, in education and social science area, using different databases. In addition, with the network structure obtained for common work and common author and country collaborations, the connections between the authors, works and countries that are named as node have been visually presented. In this way, the big picture of the area has been revealed. The collaboration structure belonging to outstanding works and authors of item response theory should be considered as a guide that will form the start for future researches.

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## **An Analysis of the Relationship Between the General Self-efficacy Perceptions of Teachers and Their Political Skill Levels\***

**Fatih Bozbayındır<sup>i</sup>**  
Gaziantep University

**Sedat Alev<sup>ii</sup>**  
Ministry of Education

### **Abstract**

The purpose of this study is to examine the relationship between the general self-efficacy perceptions of teachers and their political skill levels. The relational screening model method was used for this study. Data was collected from 358 teachers serving at primary and secondary schools in the city of Gaziantep in the 2017-2018 academic year. The research's data was collected through the "General Self-Efficacy Scale" and the "Political Skill Inventory". The confirmatory factor analysis was performed for each of the scales used in the study with the AMOS software. This was followed by descriptive statistics and correlation, and regression analyses with the SPSS program. Research findings indicate that teachers' general self-efficacy perceptions, as well as the interpersonal influence and apparent sincerity sub-dimensions of political skills are at a high level, while their social astuteness and networking abilities are at a medium level. As a result of the correlation analysis, it was found that the general self-efficacy had a significant positive relationship with the networking ability, apparent sincerity, social astuteness and interpersonal influence sub-dimensions of political skills. According to the stepwise multiple regression analysis results, the general self-efficacy predicts all the sub-dimensions of the political skills in a significant and positive manner. It can be suggested that teachers with high general self-efficacy perceptions have higher levels of political skills and are more likely to reach their goals by using their political skills with the people around them in the school environment.

**Keywords:** General self-efficacy, political skills, teacher, school

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<sup>i</sup> **Fatih Bozbayındır**, Assist. Prof. Dr., Nizip Faculty of Education / Education Sciences

**Correspondence:** fatihbozbayindir@gmail.com

<sup>ii</sup> **Sedat Alev**, Dr., Ministry of Education

## INTRODUCTION

It is known, that of all the institutions with a key role in raising the human resources of societies, schools are at the forefront. It is observed that teachers working at schools encounter various problems during their educational activities and some of them are more competent in the resolution of such problems (Alev, 2018). Atıcı (2001) has stated that one of the most important reasons for this is the self-efficacy perceptions of teachers. Efficacy is defined as the abilities and information that an individual requires to be able to perform a duty or fulfill his/her responsibilities (Okutan and Kahveci, 2012), while self-efficacy is defined as the belief of an individual in his/her ability to perform a job, enabling that individual to manage the situations that s/he is expected to (Mitchell, Hopper, Daniels, George-Falvy and James, 1994; Bandura, 1995). Similarly, Bozbaş (2015) has referred to “self-efficacy as the individual’s awareness of his/her own knowledge, skills, abilities and capacity” (p.38). Basım, Korkmazürek and Tokat (2008) have stated that the belief of individuals in their perceptions of their self-efficacy has an impact on their ability to take action and their determination to cope with the problems that they will face, while Karahan (2006) has stated that individuals with high levels of self-efficacy will be calm, self-confident and strong in the face of difficult tasks and events and make more of an effort when faced with obstacles by directing their attention and efforts towards the demands from the group. In this context, it can be suggested that a high level of self-efficacy perception in an individual will contribute to his/her ability to cope more easily with the negative situations s/he encounters and his/her ability to make an effort for such purposes.

Although Bandura (1977) described self-efficacy as an assessment of the individual's perceptions of his/her own abilities in a particular field (e.g., self-efficacy perceptions of teachers regarding the teaching of a subject) in his study on the theory of self-efficacy, he also stated that these perceptions were generalizable (Aypay, 2010). While general self-efficacy perception, as expressed by Sahranç (2007), is the result of an individual’s situational self-assessment of the challenges s/he faced, general self-efficacy is also accepted as a personality trait since individuals with a high level of perception of self-efficacy regard themselves as strong enough "to cope" in various scenarios. General self-efficacy is described as the individual’s belief in his/her efficacy to cope with stressful and challenging situations s/he faces in everyday life (Scholz and Schwarzer, 2005), the individual’s anticipation of his/her ability to succeed, achieve and cope (Judge and Bono, 2001), and the individual’s perceptions of his/her overall competency or ability for performing as required in various situations (Chen, Gully and Eden, 2001; Chen, Goddard and Casper, 2004; Eryaman et al., 2013).

Individuals' perception of general self-efficacy is reflected in all stages of their lives as individuals with a high level of general self-efficacy become more successful in setting and achieving goals, and individuals who achieve their goals get more satisfaction from life (Yılmaz, Yiğit and Kaşarcı, 2012). According to Aydıner (2011) as well, “individuals with high levels of general self-efficacy perception are able to solve any problem they encounter more successfully, they are more resilient to such situations and they enjoy their lives more” (p.1). While an individual with a high level of self-efficacy perception acts resolutely when s/he fails, an individual with a low level of self-efficacy perception gives up on things too easily and stops trying (Lombardo, 2006; Luszczynska, Scholz and Schwarzer, 2005). Hazır-Bıkmaz (2006) mentioned that an individuals’ belief in their self-efficacy would affect the goals they set, the effort they put into the realization of those goals, how long they’d be able to endure the challenges they face in this process and their reactions in case of failure. In this context, the general self-efficacy perception is argued to be related to political skills which are not considered to be a part of, but does affect and tries to affect the formal roles of the employees and which consist of activities for the allocation of advantages and disadvantages (Robbins and Judge, 2013) in the organization.

A political skill is generally described as the individual’s adjustment of his/her behavior in order to change situational conditions; his/her influence on and control of the reactions s/he receives from the people around him/her and his/her effort to realize personal or organizational goals (Ahearn,

Ferris, Hochwarter, Douglas and Ammeter, 2004; Ferris, Treadway, et. al., 2005; Jawahar, Meurs, Ferris and Hochwarter, 2008). Likewise, Aslan and Pektaş (2017) describes a political skill as a process for influencing the behavior of others in order to achieve personal goals. According to Robbins and Judge (2013), individuals have different political skills and different abilities for influencing other individuals for their own purposes. People with a high level of political skills are very influential in their ability to use all of their talents. Perrewe, Ferris, Frink and Anthony (2000) stated that political skills can be learned and developed over time despite the belief that they are personal skills. In other words, it can be suggested that individuals will adjust their behavior according to the feedback they receive from the people around them and behave accordingly to be able to realize their own goals as well as those of the organization and be able to learn over time how to behave in different situations.

Özdemir and Gören (2016) mention that “behavior in relation to political skills, which are a part of the organizational life and hence the organizational behavior, are displayed for the purpose of protecting and strengthening the personal control of the member of the organization in the organizational environment” (p.522). In support of this statement, Vohs, Baumeister and Ciarocco (2005) pointed out the importance of political skills by stating that one of the most important skills within the organization is the effective presentation of one’s self to others. Zellars, Perrewé, Rossi, Tepper, and Ferris, (2008) stated that, “political skill is a personal construct consisting of the ability to adjust behaviors against different situations while being sincere, exuding confidence and having an influence on others” (p.553). In this context, it can be suggested that individuals would be displaying political behaviors in the organizational environment in order to create the desired impact on others and realize their personal goals. Stating that one of the important reasons for individuals working in an organizational environment to display political behaviors is the personal factors. Özdemir and Gören (2016) indicate that employees with certain personality types, in particular, often resort to such behaviors and usually, employees with internal control who want to have a high level of power are the ones displaying the political behaviors.

Political skills consist of four sub-dimensions which are social astuteness, interpersonal influence, networking ability and apparent sincerity (Ferris, Treadway, et al., 2005). Employees with a high level of social astuteness are able to make good observations and fit into different social environments (Aslan and Pektaş, 2017). People with a high level of interpersonal influence are able to have a strong influence on their colleagues and the people around them and be convincing. The ability to communicate includes the individuals’ ability to build friendships with those around them by increasing their levels of success, value and reputation and thus make it easier to form groups for particular purposes in the organization (Perrewe and Nelson, 2004; Atay, 2010, Yıldıztaşı, 2017). Regarding the final sub-dimension of apparent sincerity, Blass and Ferris (2007) pointed out the importance of apparent sincerity in influencing others as desired and stated that the individual’s power of influencing others would be diminished in the absence of sincerity.

In educational organizations, it is considered important that teachers are aware of and behave in accordance with their own efficacies so that they can play an effective role in activities for the development of education, adjust their behaviors in accordance with the reactions they receive from the people around them and be a positive role model. Hence, Ekici (2006) and Karabacak (2014) stated that the self-efficacy of teachers is a significant factor, especially for the effectiveness of the teacher and the school. A high level of self-efficacy plays an important role in the teachers’ ability to persistently overcome obstacles and not back down in the face of failure (Goddard, Hoy and Hoy, 2004). Similarly, Telef (2011) emphasized the importance of self-efficacy, indicating that teachers who have a strong sense of self-efficacy tend to display specific and observable behaviors such as self-confidence, drive, persistence, and effort. In addition, according to Özdemir and Gören (2016) “teachers can display political behaviors in order to achieve organizational and personal goals at educational organizations where the education process is planned, implemented and assessed” (p.522). With respect to this, Aslan and Pektaş (2017) stated that the achievement of teachers in their planned pursuits could only be possible by the successful conduct of their political behaviors in this process and the political skills that the teachers have would be the determining factor in their success or failure

in this process. In this context, the purpose of this study is to examine the level of efficacy that teachers are able to cope with problems or realize their goals by initially making a self-assessment of their ability to cope with problems they may encounter during the education process, and, by considering their capabilities and skills, the relationship between efficacy levels and political skills, which are described as the influence of individuals on others around them for the purpose of their personal goals. Based on this main purpose, responses to the following questions are sought:

1. At what levels are the general self-efficacy and political skill perceptions of teachers?
2. Is there a significant relationship between the general self-efficacy perceptions and political skills of teachers?
3. Do the general self-efficacy perceptions of teachers predict the social astuteness sub-dimension of political skills?
4. Do the general self-efficacy perceptions of teachers predict the interpersonal influence sub-dimension of political skills?
5. Do the general self-efficacy perceptions of teachers predict the networking ability sub-dimension of political skills?
6. Do the general self-efficacy perceptions of teachers predict the apparent sincerity sub-dimension of political skills?

## METHODOLOGY

In the research, the relational model that aims to identify whether there is any relation or not between two or more variables and if there is, the level of such relation (Fraenkel and Wallen, 2006; Christensen, Johnson and Burke, 2015) was used. In this research carried out in this context, the existence of a relation between “general self-efficacy” and “political skills” has been examined. The research sample consists of 358 teachers serving at the primary and secondary schools in the city of Gaziantep in the 2017-2018 academic year. 42.7% of the teachers who participated in the study (n=153) were male, 57.3% (n=205) were female; 73.7% (n=264) were married, and 26.3% (n=94) were single teachers. In terms of age groups, 36.3% (n=130) were between the ages of 21 and 30, 45.0% (n=161) were between the ages of 31 and 40 and 18.7% (n=67) were 41 or above. While 51.1% (n=183) of participants were class teachers, 48.9% (n=175) consisted of other subject matter teachers. The number of teachers with an undergraduate degree consisted of 94.4% (n=338) of the teachers while the number of teachers with a graduate degree consisted of 5.6% (n=20) of the teachers.

The research data was collected using the “General Self-Efficacy Scale” developed by Sherer et al. (1982), which involved its adaptation to Turkish, validity and reliability has been carried out by Yıldırım and İlhan (2010), and which is responded through a Likert scale of 5 and consists of a total of 17 items and three dimensions. The “Political Skill Inventory” (PSI) developed by Ferris et al. (2005), which involved its adaptation to Turkish and the validity and reliability of its Turkish form has been carried out by Özdemir and Gören (2015), and is responded through a Likert scale of 7 and consists of a total of 18 items and four sub-dimensions. The confirmatory factor analysis was performed for each of the scales used in the study with the AMOS software. This was followed by descriptive statistics and correlation, and regression analyses with the SPSS program.

The adaptive values found as a result of the confirmatory factor analysis (CFA) carried out upon the “General Self-Efficacy Scale” were  $\chi^2= 164.102$ ,  $\chi^2/df= 1.908$ ,  $p= 0.000$ , RMR= 0.035, RMSEA= 0.050, GFI= 0.945, AGFI= 0.923, NFI= 0.926, IFI= 0.963, TLI= 0.955, CFI= 0.963, while the adaptive values found as a result of the CFA carried out on the “Political Skill Inventory” were  $\chi^2= 177.476$ ,  $\chi^2/df= 2.191$ ,  $p= 0.000$ , RMR= 0.076, RMSEA= 0.058, GFI= 0.937, AGFI= 0.906, NFI=

951, IFI= 0.973, TLI= 0.964, CFI= 0.972). The adaptive values obtained as a result of the analysis were determined to be a good fit for both scales. Even though many values for model fit are available, it has been observed that the values of  $\chi^2$ ,  $\chi^2/\text{sd}$ , RMR, RMSEA, GFI, AGFI, NFI, IFI, CFI and TLI are the ones that are usually reported by researchers (Meydan and Şeşen, 2015). Therefore, it was decided that these values should be used in the research. Considering that the value of  $\chi^2/\text{sd}$  being less than or equal to 3 is a good fit (Sümer, 2000), it can be suggested that  $\chi^2/\text{sd}$  ratio for both scales is a good fit. Considering that the values of RMSEA (The Root Mean Square Error of Approximation) and RMR (The Root Mean Square Residual) being less than or equal to 0.05 is a sign of good fit (Sümer, 2000; Kline, 2011) and being between 0.06 and 0.08 is acceptable (Meydan and Şeşen, 2015), it can be said that the RMR and RMSEA values are acceptable for the Political Skill Scale, while they are a good fit for the General Self-Efficacy Scale. It can be said that the values obtained from the analysis have a good fit since the GFI (Goodness of Fit) and AGFI (Adjusted Goodness of Fit) fit values of 0.90 and above indicate a good fit (Sümer, 2000), whereas values between 0.85 and 0.89 indicate an acceptable fit (Meydan and Şeşen, 2015). Of the other values for goodness of fit, the NFI (Normed Fit Index), IFI (Incremental Fit Index) and TLI (Tucker Lewis Index) values of 0.95 and above indicate a good fit, while values between 0.90 and 0.94 indicate an acceptable fit. As such, it is observed that all these three values are good fitness values. Considering that a CFI (Comparative Fit Index) value of 0.97 and above indicates a good fit and a value of 0.95 and above indicates an acceptable fit, it can be said that the obtained value has a good fit. Since the difference between the values obtained through the 1st and 2nd level of CFA results on the General self-efficacy and Political skill scales is not significant, the ECVI (Expected Cross Validation Index) value is not included.

## RESULTS

In the research, initially the descriptive statistics and correlation coefficients for the general self-efficacy and political skills have been calculated. Values obtained as a result of the analysis are provided below in Table 1.

**Table 1. Descriptive Statistics and Correlation Coefficients**

| Variables          | $\bar{X}$ | Sd.  | Std. Error | 1       | 2       | 3       | 4       | 5 |
|--------------------|-----------|------|------------|---------|---------|---------|---------|---|
| 1. General_S       | 4.02      | 0.57 | 0.030      | 1       |         |         |         |   |
| 2. Networking_A    | 4.35      | 1.12 | 0.059      | 0.136*  | 1       |         |         |   |
| 3. Apparent_S      | 5.89      | 1.06 | 0.056      | 0.266** | 0.418** | 1       |         |   |
| 4. Social_A        | 4.48      | 1.28 | 0.068      | 0.174*  | 0.578** | 0.403** | 1       |   |
| 5. Interpersonal_I | 4.93      | 1.23 | 0.064      | 0.293*  | 0.622** | 0.510** | 0.659** | 1 |

\*p<0.05, \*\*p<0.01

*Note:* General\_S: General self-efficacy, Networking\_A: Networking ability, Apparent\_S: Apparent sincerity, Social\_A: Social astuteness, Interpersonal\_I: Interpersonal influence.

When the values in Table 1 are examined, it can be seen that the general self-efficacy perceptions of teachers are at a high level, while the sub-dimension of apparent sincerity has the highest average level in all the sub-dimensions of political skills, followed by interpersonal influence, social astuteness and networking ability, ordered from the highest to the lowest level. As a result of the correlation analysis, it was determined that the general self-efficacy had a positively significant and relatively low level of relationship with the networking ability, apparent sincerity, social astuteness and interpersonal influence sub-dimensions of political skills.

In the research, the general self-efficacy was handled as a predictor (independent) variable, while each of the four sub-dimensions of political skills was handled as a predicted (dependent) variable and the stepwise multiple linear regression analysis was carried out accordingly. In the regression analyses, the variables of gender (dummy), age and type of school were taken under control in the first step. Values obtained as a result of the stepwise multiple regression analysis carried out

with respect to the general self-efficacy's prediction of the sub-dimension of networking ability are provided below in Table 2.

**Table 2. Results of the stepwise multiple regression analysis with respect to the general self-efficacy's prediction of the sub-dimension of networking ability**

| Model 1             | Predictor variables   | B     | Std. Error | $\beta$ | t     | p       |
|---------------------|-----------------------|-------|------------|---------|-------|---------|
| 1st step<br>(enter) | Fixed                 | 4.31  | 0.35       |         | 12.31 | 0.00*** |
|                     | Gender (dummy)        | -0.21 | 0.13       | -0.09   | -1.70 | 0.09    |
|                     | Age                   | 0.00  | 0.01       | 0.02    | 0.40  | 0.69    |
|                     | Type of school        | 0.16  | 0.14       | 0.06    | 1.12  | 0.26    |
| 2nd step            | Fixed                 | 2.96  | 0.55       |         | 5.41  | 0.00*** |
|                     | Gender (dummy)        | -0.27 | 0.13       | -0.12   | -2.12 | 0.03*   |
|                     | Age                   | 0.00  | 0.01       | 0.02    | 0.40  | 0.69    |
|                     | Type of School        | 0.24  | 0.14       | 0.10    | 1.70  | 0.09    |
|                     | General Self-Efficacy | 0.34  | 0.11       | 0.17    | 3.19  | 0.00*** |

$R^2_{\text{change}} = .028$

\* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$

As can be seen in Table 2, when the variables of gender, age and type of school were controlled in the 1st step, it was found in the 2nd step that the general self-efficacy of teachers significantly predicted the networking ability sub-dimension of the political skills ( $\beta = 0.17^{***}$ ,  $p = 0.00$ ). Accordingly, an increase of 1 unit in general self-efficacy provides an increase of 0.17 unit in the networking ability. General self-efficacy of teachers accounts for 2.8% of the variance in their networking ability ( $\Delta R^2 = 0.028$ ;  $p = 0.00$ ). In other words, as the general self-efficacy of teachers increases, so does networking abilities.

Results of the stepwise multiple regression analysis carried out with respect to the general self-efficacy's prediction of the sub-dimension of apparent sincerity are provided below in Table 3.

**Table 3. Results of the stepwise multiple regression analysis with respect to the general self-efficacy's prediction of the sub-dimension of apparent sincerity**

| Model 2             | Predictor variables   | B     | Std. Error | $\beta$ | t     | p       |
|---------------------|-----------------------|-------|------------|---------|-------|---------|
| 1st step<br>(enter) | Fixed                 | 5.71  | 0.33       |         | 17.24 | 0.00*** |
|                     | Gender (dummy)        | 0.21  | 0.12       | 0.10    | 1.80  | 0.07    |
|                     | Age                   | 0.00  | 0.01       | 0.01    | 0.23  | 0.82    |
|                     | Type of school        | -0.03 | 0.13       | -0.01   | -0.26 | 0.80    |
| 2nd step            | Fixed                 | 3.74  | 0.51       |         | 7.38  | 0.00*** |
|                     | Gender (dummy)        | 0.14  | 0.12       | 0.06    | 1.19  | 0.24    |
|                     | Age                   | 0.00  | 0.01       | 0.01    | 0.23  | 0.82    |
|                     | Type of School        | 0.08  | 0.13       | 0.04    | 0.65  | 0.52    |
|                     | General Self-Efficacy | 0.49  | 0.10       | 0.26    | 5.00  | 0.00*** |

$R^2_{\text{change}} = 0.066$

\* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$

When the results of the stepwise multiple regression analysis provided in Table 3 is examined, it can be seen that when the predictive variables of gender, age and type of school were controlled in the first step, it was found in the second step that the general self-efficacy of teachers significantly predicted the apparent sincerity sub-dimension of the political skills ( $\beta = 0.17^{***}$ ,  $p = 0.00$ ). An increase

of 1 unit in general self-efficacy provides an increase of 0.26 unit in the apparent sincerity. General self-efficacy of teachers accounts for 6.6% of the variance in their apparent sincerity ( $\Delta R^2 = 0.066$ ;  $p=0.00$ ). In other words, as the teachers' belief in their general self-efficacy increases, their display of apparent sincerity also increases.

Results of the stepwise multiple regression analysis carried out in order to determine the level of general self-efficacy's prediction of social astuteness, which is another sub-dimension of political skills, are provided below in Table 4.

**Table 4. Results of the stepwise multiple regression analysis with respect to the general self-efficacy's prediction of the sub-dimension of social astuteness**

| Model 3             | Predictor variables   | B     | Std. Error | $\beta$ | t     | p       |
|---------------------|-----------------------|-------|------------|---------|-------|---------|
| 1st step<br>(enter) | Fixed                 | 4.78  | 0.40       |         | 11.88 | 0.00*** |
|                     | Gender (dummy)        | -0.18 | 0.14       | -0.07   | -1.22 | 0.23    |
|                     | Age                   | -0.01 | 0.01       | -0.03   | -0.48 | 0.63    |
|                     | Type of school        | -0.14 | 0.16       | -0.05   | -0.84 | 0.40    |
| 2nd step            | Fixed                 | 3.10  | 0.63       |         | 4.94  | 0.00*** |
|                     | Gender (dummy)        | -0.24 | 0.14       | -0.92   | -1.68 | 0.10    |
|                     | Age                   | -0.01 | 0.01       | -0.03   | -0.49 | 0.62    |
|                     | Type of School        | -0.04 | 0.16       | -0.01   | -0.22 | 0.83    |
|                     | General Self-Efficacy | 0.42  | 0.12       | 0.19    | 3.46  | 0.00*** |

$R^2_{\text{change}} = 0.033$

\* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$

As it can be seen in Table 4, when the variables of gender, age and type of school were controlled in the first step, general self-efficacy was added to the model in the second step and found that the general self-efficacy of teachers significantly predicted the sub-dimension of social astuteness ( $\beta = 0.19$ \*\*\*,  $p = 0.00$ ). According to this result, an increase of 1 unit in general self-efficacy causes an increase of 0.19 unit in social astuteness. The general self-efficacy of teachers accounts for 3.3% of the variance in their social astuteness ( $\Delta R^2 = 0.033$ ;  $p = 0.00$ ). In other words, as the teachers' belief in their general self-efficacy increases, so will their social astuteness.

Finally, the results of the stepwise multiple regression analysis carried out with respect to the general self-efficacy's prediction of the interpersonal influence sub-dimension of political skills are provided below in Table 5.

**Table 5. Results of the stepwise multiple regression analysis with respect to the general self-efficacy's prediction of the sub-dimension of interpersonal influence**

| Model 4             | Predictor variables   | B     | Std. Error | $\beta$ | t     | p       |
|---------------------|-----------------------|-------|------------|---------|-------|---------|
| 1st step<br>(enter) | Fixed                 | 5.15  | 0.38       |         | 13.40 | 0.00*** |
|                     | Gender (dummy)        | 0.59  | 0.14       | 0.02    | 0.43  | 0.67    |
|                     | Age                   | -0.01 | 0.01       | -0.04   | -0.75 | 0.46    |
|                     | Type of school        | -0.01 | 0.15       | -0.00   | -0.08 | 0.94    |
| 2nd step            | Fixed                 | 2.50  | 0.58       |         | 4.30  | 0.00*** |
|                     | Gender (dummy)        | -0.04 | 0.13       | -0.02   | -0.32 | 0.75    |
|                     | Age                   | -0.01 | 0.01       | -0.04   | -0.79 | 0.43    |
|                     | Type of School        | 0.15  | 0.15       | 0.05    | 0.99  | 0.32    |
|                     | General Self-Efficacy | 0.66  | 0.11       | 0.31    | 5.89  | 0.00*** |

$R^2_{\text{change}} = 0.089$

\* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$

As it can be seen upon the examination of Table 5, the predictive variables of gender, age and type of school were initially taken under control in the first step. Then, in the second step, general self-efficacy was added to the model and as a result, it was found that the general self-efficacy of teachers significantly predicted the sub-dimension of interpersonal influence ( $\beta=0.31^{***}$ ,  $p=0.00$ ). An increase of 1 unit in general self-efficacy will provide an increase of 0.31 unit in interpersonal influence. General self-efficacy of teachers accounts for 8.9% of the variance in their interpersonal influence ( $\Delta R^2=0.089$ ;  $p=0.00$ ). In other words, an increase in the teachers' belief in their general self-efficacy causes an increase in their interpersonal influence as well.

## DISCUSSION, CONCLUSION AND SUGGESTIONS

In this research, the relationship between general self-efficacy and political skills is examined and determined, according to the results obtained from descriptive analyses, that the general self-efficacy perceptions of teachers are at a high level. It has been observed that findings of some other studies (Tschannen-Moran and Hoy, 2001; Çimen, 2007; Gençtürk, 2008; Turcan, 2011; Toy, 2015; Aydın, 2016; Riedler and Eryaman, 2016; Özkurt, 2017) in relation to the teachers' high level of general self-efficacy perceptions support the findings of this study. In the research carried out by Benzer (2011) on the self-efficacy perceptions of teachers, it was found that the self-efficacy perceptions of teachers serving in primary and secondary educational institutions were at a high level. In another study carried out by Eker (2014), it was determined that the general self-efficacy perceptions of class teachers were at an acceptable level. It is seen that these results are consistent with the findings of the research. While the research revealed that the general self-efficacy perceptions of teachers were at a high level, another study carried out by Üstüne, Demirtaş, Cömert and Özer (2009) for determining the self-efficacy perceptions of secondary school teachers revealed that the self-efficacy perceptions of teachers were at a medium level.

Another finding of the research revealed that the apparent sincerity sub-dimension of political skills is at a high level, while the interpersonal influence is at a relatively high level and the social astuteness and networking ability are at a medium level. In support of the research findings, Uğurlu and Bostancı (2017) found, as a result of their research, that teachers have higher levels of the apparent sincerity sub-dimension of the political skills, compared to the networking ability, interpersonal influence and social astuteness sub-dimensions. This result can be interpreted as the value teachers place in apparent sincerity in their communication with the people around them (administrator, colleague, student, parent, etc.) in order to not leave a negative impression on them, gain their trust and hence realize their personal and organizational goals. In research carried out by Aslan and Pektaş (2017), it was found that the political skills of teachers were at a medium level. As a result of the study sample of secondary school teachers, Yıldıztaşı (2017) also determined that the political skills of teachers were at a medium level. Bostancı, Tosun, Gidiş and Karaca (2016) on the other hand, found out as a result of their research that the political skill levels of teachers were high. These results support the findings of the research.

As a result of the correlation analysis performed in order to determine the existence, direction and extent of the relationship between the variables, it was found that the general self-efficacy had a positively significant relationship with the networking ability, apparent sincerity, social astuteness and interpersonal influence sub-dimensions of political skills, although weak. Some other studies (Perrewe, Zellars, et al., 2004; Jawahar, Meurs, Ferris and Hochwarter, 2008) revealed a significant but weak level of relationship between general self-efficacy and political skills. This research also revealed that general self-efficacy had a significant but weak relationship level with all the sub-dimensions of political skills. In research carried out by Özdemir and Gören (2016), it was stated that one of the reasons why political skills were discovered at a high level was because the self-efficacy perception was at a high level. Zellars, Perrewé, Rossi, Tepper, and Ferris, (2008) stated that political skill is a personal construct consisting of the ability to adjust behaviors against different situations while being sincere, exuding confidence and having an influence on other individuals. Dweck and Leggett (1988) stated that self-efficacy played an important role in the individuals' decision-making processes, thinking styles and problem-solving approaches. According to Tschannen-Moran, Hoy and

Hoy (1998), teachers with a high level of self-efficacy perception are open to new ideas and are more willing to try new methods for the needs of their students. Their skill level of planning and organization is also higher than those of others. Therefore, it can be suggested that the self-efficacy perceptions of teachers with a high level of political skills are effective in their planning and decision-making processes as to how they'll behave in different situations.

As a result of the stepwise multiple regression analysis carried out with respect to the general self-efficacy's prediction of the political skills, general self-efficacy's level of prediction of the sub-dimensions of political skills were examined on an individual basis. According to the results, the general self-efficacy is found to predict all the sub-dimensions of the political skills in a positively significant manner. The general self-efficacy accounts for 2.8% of the networking ability, 3.3% of social astuteness, 6.6% of apparent sincerity and 8.9% of interpersonal influence. It can be seen that the highest level of variance is in the sub-dimension of interpersonal influence. With respect to this, Aslan and Pektaş (2017) described a political skill as a process for influencing the behavior of others in order to achieve personal goals, making a reference to the interpersonal influence. With regards to the sub-dimension of apparent sincerity predicted by general self-efficacy, Buchanan (2008) stated that a political skill is the combination of skills in social areas by demonstrating effective communication skills and the behaviors required by the circumstances. Indicating the importance of apparent sincerity in influencing others as desired, Blass and Ferris (2007) stated that the individual's power of influence on others would be diminished in the absence of sincerity.

The ability to communicate involves the individuals' ability to build friendships with those around them by increasing their levels of success, value and reputation and thus make it easier to form groups for particular purposes in the organization (Perrewe and Nelson, 2004; Atay, 2010, Yıldıztaşı, 2017). According to the findings, general self-efficacy predicts the ability to communicate. In other words, teachers with a high level of general self-efficacy perception communicate more easily with the individuals around them and display behaviors that are intended to realize their goals. When the results are assessed in general, it's possible to mention that the general self-efficacy perceptions of teachers are deterministic of political skills. It can be argued that teachers can display behaviors that require political skills, particularly in the school environment. This is because, their possession of the ability to communicate effectively, act sincerely and adjust their behaviors according to the circumstances is considered to be important as teaching is a profession that requires constant interaction with others. Put simply; teachers with a high level of general self-efficacy perception have higher levels of political skills and are more likely to reach their goals by using their political skills on the people around them in the school environment.

It's possible to make suggestions for researchers and practitioners based on the research findings. The research can be carried out on different samples and different levels of education (secondary school and higher education) and the results can be compared. Since the number of studies on political skills in schools are limited, quantitative studies where the political skills are analyzed with different variables, as well as qualitative studies or mixed studies providing the opportunity to analyze the case in more depth can be conducted. Finally, teachers can be encouraged to attend various seminars and trainings to improve their self-efficacies, hence providing them the opportunity to enhance their political skills and measures that would allow them to cope more effectively with potential adverse situations such as failure or conflict and create a positive trust-based school culture.

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## **Self-leadership Strategies as the Predictor of Self-esteem and Life Satisfaction in University Students**

**Ersin Uzman<sup>i</sup>**

Çanakkale Onsekiz Mart University

**İlknur Maya<sup>ii</sup>**

Çanakkale Onsekiz Mart University

### **Abstract**

Self-leadership is human resource that can be developed. It is self-influence through behavioral and cognitive strategies and can influence both self-esteem and life satisfaction. The present study aims to determine whether and to what degree self-leadership strategies used by university students predict their self-esteem and life satisfaction. The study, using relational survey model and quantitative paradigm, was conducted with 360 university students. The findings indicated that there were positive and significant correlations between the use of self-leadership strategies (behavior-focused strategies and constructive thought strategies) and self-esteem and life satisfaction. Of the strategies, behavior-focused strategies were found to be the strongest predictor of university students' self-esteem and life satisfaction.

**Key Words** Self-leadership strategies • Self-esteem • Life satisfaction

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<sup>i</sup> **Ersin Uzman**, Assist. Prof. Dr., Çanakkale Onsekiz Mart University, Education Faculty, Psychological Counseling and Guidance

**Correspondence:** euzman@comu.edu.tr

<sup>ii</sup> **İlknur Maya**, Assoc. Prof. Dr., Çanakkale Onsekiz Mart University, Education Sciences

## INTRODUCTION

The development of human resource is one of the important issues of societies. Interest in the issue has been increasing due to the currently need for the effective and efficient use of human resource. Thus, studies on human potential have been conducted, and efforts have been made to accumulate knowledge and plan application-oriented interventions. Self-leadership, which has gained importance in the area of management and has become the subject of research in recent years (Amundsen and Martinsen, 2014; Carmeli, Meitar & Weisberg, 2006; D'Intino, Goldsby, Houghton, & Neck, 2007; Furtner, Baldegger & Rauthmann, 2013), is considered a human-specific potential that can be developed and contribute to the development of human resource. This potential can increase self-esteem and life satisfaction by leading to greater individual effectiveness. However, it isn't examined whether self-leadership is related to self-esteem and life satisfaction in especially university students in Turkey. Therefore, this paper aims to determine the relationship of self-leadership with self-esteem and life satisfaction.

### Self-leadership Strategies

Self-leadership is a human potential that needs to be considered in developing human resource (Manz & Manz, 1991). Self-leadership, a new concept suggested in the field of leadership, is based on the concept that one should lead oneself before leading others. The concept was first put forward by Manz (1986), and it means that an individual makes himself take action and thus live his life effectively (Haisten, 2008). In other words, self-leadership is the process of an individual's influencing himself by managing and observing his own thoughts and behaviors. This is intrinsic, specific to humans. Humans set themselves in motion to achieve their self-determined goals in this process (Carmeli et al, 2006). In this case, the basic source motivating an individual's behaviors and thoughts and allowing his control over them is his own inner world.

Self-leadership consists of several strategies. Individuals use a series of cognitive, behavioral and emotional strategies in controlling their own behaviors, affecting themselves and leading themselves (Neck & Houghton, 2006; Unsworth & Mason, 2012). These strategies are named behavior-focused strategies, constructive thought strategies and natural reward strategies.

The first strategy, behavior-focused strategies lead an individual to determine ineffective behaviors and display them by replacing effective ones (Neck & Houghton, 2006). These strategies result in an individual's focusing on his own behaviors and thus making modifications to his behaviors. Behavior-focused strategies are composed of strategies of observing oneself, rewarding oneself, punishing oneself, setting goals for oneself and determining reminders for oneself (Neck & Houghton, 2006). Self-observation helps individuals to become aware of their behaviors (D'Intino et al., 2007). In this way, an individual can know through self- observation when, why and how to display particular behavior (Houghton & Neck, 2007; Stewart, Courtright, & Manz, 2011). Self-rewarding means an individual's rewarding oneself mentally or physically to perform a task or an activity (Houghton, Dawley & DiLiello, 2012). It affects action in positive ways and leads to new achievement (Manz, 1992). This strategy is an individual's congratulating oneself for his achievement (Boss & Sims, 2008; Neck & Houghton, 2006) and making oneself happy. Self-punishment, is an individual's criticism of oneself or his negative reactions to himself for his failure (James, 2009). Undesirable behaviors can be brought under control through self-punishment. Self-goal setting strategies are to create realistic long term and short term goals. The last one is determining reminders for oneself. This is a strategy one uses to remember important tasks, which attracts attention to important behaviors and in which reminders are used; and thus behaviors are focused on (Manz, 1992). In this respect, the use of the strategy is a measure against probability of forgetting important tasks.

The second strategy, constructive thought strategies are composed of imagining, self-talk and evaluating beliefs and assumptions. Constructive thought strategies focus on an individual's thoughts, and they involve the re-regulation of those thoughts according to whether they are healthy. This

strategy aims to identify and change unhealthy thoughts that are based on wrong beliefs and hypotheses (Neck & Houghton, 2006). Thus, constructive thought strategies are the strategies that involve considering non-functional assumptions and beliefs, imagining speaking to oneself positively and controlling oneself and one's performance (Houghton & Jinkerson, 2007). These strategies help individuals control their emotional states by changing their irrational and unrealistic beliefs and thus improving their performance (Neck & Manz, 1992). Such strategies can cause individuals to feel better in the positive atmosphere created by positive statements that are logical and not destructive to identity (Neck & Manz, 1992).

Consequently, constructive thought strategies help individuals increase their effectiveness by facilitating the management of thought patterns, on the one hand (Manz, 1986), and helping control emotions by changing irrational and unreal statements and creating positive effects on performance, on the other hand. Individuals using this strategies can thus be considered to be successful in life and to have positive internal speech and imagination (Neck & Manz, 1992).

The third strategy, natural reward strategies are emotional strategies involving highlighting the enjoyable and satisfying aspects of a job or a task and ignoring the unpleasant or difficult parts of it (Houghton, Bonham, Neck, & Singh, 2004), thus increasing the pleasure taken from the task or job (Unsworth & Mason, 2012). Therefore, negative experiences about the task fulfilled are ignored, and positive experiences are focused on in natural reward strategies (Carmeli et al. 2006).

Studies conducted in the field of self-leadership have demonstrated that self-leadership strategies have positive effects on individuals' lives. According to research findings, self-leadership strategies contribute to participants' effectiveness in problem solving and in coping with negative feelings and lead to healthier and better living conditions (Yun et al, 2014). Individuals who could act as self-leaders had high prolificacy, job satisfaction and positive feelings (Stewart et al., 2011). In addition, self-leadership has been found to be negatively correlated with burnout (Garipağaoğlu & Güloğlu, 2015) but positively correlated with psychological empowerment (Wilson, 2011) and learned resourcefulness (Garipağaoğlu & Güloğlu, 2015).

Individuals who are self-leaders have the ability to use adaptive coping abilities (Wang, Xie & Cui, 2016) and to generate new solutions and ideas (Carmeli et al, 2006) in addition to their personal resources. In a sense, self-leadership allows more effective self-management and self-influence (Neck & Houghton, 2006). Therefore, individuals with self-leadership strategies are knowledgeable about how to manage themselves and what road maps to follow in differing situations (Carmeli et al, 2006). In addition, self-leadership strategies function as effective mechanisms for individuals to cope with a given situation in a healthy way (Georgianna, 2015). Consequently, in this context, self-leadership can be associated with self-esteem and life satisfaction.

### **Self-leadership strategies and Self-esteem**

Self-esteem is an important human need (Branden, 2001) and an important psychological source (Mruk, 2013). It is an individual's judgement about his own value. It is dependent on judgemental and emotional components, is influenced by experiences, and develops in positive ways depending on the success of previous experiences (Ross, 2014). In this case, self-leadership strategies can feed the development of self-esteem. Individuals who consider themselves successful have positive feelings about themselves, and they also make positive judgements about themselves (Ross, 2014).

Self-esteem is described as an individual's inference made on the basis of his observation of his abilities and behaviors (Mann, Hosman, Schaalma, & De Vires, 2004). According to the theory of self-perception, individuals make evaluations about themselves through their observations of their actions and the results of those actions (Rosenberg & Pearlin, 1978). Self-esteem is influenced by what one does, and what one does determines one's level of self-esteem (Branden, 1994). When individuals feel they are successful, they feel good and have higher self-esteem (Rey, Extremera, &

Pena, 2011). Making a positive evaluation of oneself leads to an increase in self-esteem. Hence, it can be thought that behavior-focused strategies may lead to an increase in self-esteem.

On the other hand, individuals can feel better and make positive evaluations about themselves by replacing non-functional assumptions and beliefs with more constructive ones through the use of constructive thought strategies. According to the quality of an individual's internal talk, an individual can feel good and valuable. When the individual's self-talk is encouraging, it leads to positive statements and higher self-esteem; when it is critical, it leads to negative statements about oneself and lower self-esteem (Brinthaupt, Hein, & Kramer, 2009). In addition, constructive thought strategy involving imagining successful performance can serve individuals' positive self-evaluations and help them to feel good.

In terms of natural reward strategies, individuals focus on more enjoyable or pleasant features of task and activity rather than on unpleasant or difficult features (Houghton et al., 2004). Focusing on enjoyable features of task or activity can increase competence and self-control (Ricketts, Carter, Place, & McCoy, 2012). On the other hand, self-esteem is perception that person is capable and efficacious (Cast & Burke, 2002). In this regard, natural reward strategies can be related to self-esteem.

The issue of how self-esteem develops and how it occurs is controversial (Robins & Trzesniewski, 2005). While self-esteem is considered the predictor variable in some self-esteem studies, in others, it is considered the result variable or the instrumental variable (Brown, Dutton, & Cook, 2001). The rationale behind this is the fact that self-esteem functions in human life as both a risk creator and a protector from threats (Mann et al, 2004). For this reason, self-esteem should be considered both a cause and a consequences (Mann et al, 2004). A person maintains his feeling that he is good and valuable dependent on active and effective experiences, such feelings can be increased through self-leadership strategies practicing. Self-esteem can be the result of doing well, rather than its cause (Neff, 2011). Anderson and Prussia (1997) and Neck and Houghton (2006) in their article suggested studying the relationship between self-leadership and self-esteem. This study aims to demonstrate if self-leadership strategies have determinant effects on self-esteem that has not been studied to date.

### **Self-leadership Strategies and Life Satisfaction**

Life satisfaction is a useful and meaningful psychological structure in human life (Pavot & Diener, 1993). In general, people with high life satisfaction can adapt to their environment and have no psychological problems (Diener, Emmons, Laresen, & Griffin, 1985). Life satisfaction, which is considered important for human health, is the degree to which one enjoys his life, in which he acts as a leader (Veenhoven, 1991). An individual's life satisfaction diminishes to the extent that his feeling of controlling life events diminishes (Veenhoven, 1996). A study found that life satisfaction diminished as a consequence of an increase in stress levels due to a lack of coping resources (Gnilka, Ashby, Matheny, Chung, & Chans, 2015). Researchers have concluded that increasing coping resources would contribute to life satisfaction. Accordingly, individuals who are not skilful personally will have a higher probability of encountering negative experiences (Veenhoven, 1996). While individuals' belief in their ability to control their life ensures more satisfaction (Chen, Cheung, Bond, & Leung, 2006), the participation of people who believe that they have control over their life in more satisfying activities can lead to more satisfaction (Palmore & Luikart, 1972). Individuals who can control their feelings, thoughts and behaviors can cope with difficulties, establish healthy relations and reach personal inner peace and satisfaction (Maddux, 2002). Feeling that one can control one's life and actualise one's plans can be an important step towards increasing one's life satisfaction (Lewinsohn, Redner, & Seeley, 1991).

According to self-leadership theory, individuals' self-determined behavior, attitudes and beliefs all affect their success in life and their life satisfaction (Jooste & Maritz, 2014). Individuals with strong self-leadership strategies have the ability to regulate their own thoughts and behaviors (Furtner, Rauthmann, & Sachse, 2010). Such people can set appropriate goals, and they can select

actions and thoughts to attain those goals. Accordingly, people who set important goals for themselves have more efficacy and happier and more meaningful lives (McGregor & Little, 1998).

Self-leadership strategies can influence individuals' happiness (D'Intino et al., 2007) and life satisfaction through natural reward strategies focusing on the enjoyable aspects of a task or activity and through constructive thinking strategies leading more optimistic thinking. Self-leadership strategies help one cope with difficulties even if an activity is difficult to do. In addition, self-leadership strategies ensure that the content of internal talk changes in positive ways or that it focuses on the positive aspects of life and thus can help individuals' mental recovery (Boss & Sims, 2008).

Individuals who do not make use of self-leadership strategies, on the other hand, can have difficulty in setting goals and coping with stress, engage in unpleasant aspects of a task or activity and concentrate on the negative sides of life (Unsworth & Mason, 2012), and they may not be satisfied with life. As a result, it can be suggested that there is a relationship between self-leadership strategies and life satisfaction. But this relationship has not been studied so far. Therefore, this study has tried to determine the relationship between life satisfaction and self-leadership strategies, which is usually studied in the field of management.

### **Purpose**

This study seeks to answer the following questions, with the general aim of demonstrating the importance of self-leadership as a human resource that can be developed in university students to increase their self-esteem and life satisfaction:

1. Are there any significant correlations between the general self-leadership and self-leadership strategies components of university students and their self-esteem and life satisfaction? What is the level of the correlation between students' general self-leadership and self-leadership strategies and their self-esteem and life satisfaction?
2. Do self-leadership strategies that university students use predict their self-esteem? If so, to what extent do university students' self-leadership strategies predict their self-esteem?
3. Do self-leadership strategies that university students use predict their life satisfaction? If so, to what extent do university students' self-leadership strategies predict their life satisfaction?

## **METHOD**

### **Research Model**

This study, aiming to determine whether or not the self-leadership strategies used by university students predict their self-esteem and life satisfaction, employs relational survey model. It uses quantitative paradigm method. In this method, numerical data gathered by questionnaire, survey and experiment are analysed with statistical methods (Hittlemann & Simon, 1997).

### **Participants**

This study was conducted with 360 university students between 18 and 27 years old ( $M = 20.21$ ,  $SD = 1.65$ ), 257 (71.4%) of whom were girls, 100 (27.8%) of whom were boys and 3 (8%) of whom did not specify gender. The measurement tools were used with the participants on different days and at different times to collect the data in the classrooms. The participants' names were not requested to allow sincere answers to the questions, and the participants volunteered to take part in the study.

## **Measures**

### **Self-Leadership Scale (SLS)**

The version of Anderson and Prussia's (1997) scale, which was revised and re-arranged by Houghton and Neck (2002), was used to measure university students' self-leadership strategies in this research. The Turkish version of the scale was developed by Tabak, Sıgır and Türköz (2013). Confirmatory factor analysis showed that the fit indices for the scale were acceptable ( $X^2/SD = 2.90$ , RMSEA = .07, GFI = .96, NFI = .91, CFI = .96, IFI = .94, RMR = .04, TLI = .91). The three components of the Self-Leadership Scale are behavior-focused strategies, constructive thought strategies and natural reward strategies. Cronbach's alpha for the reliability of the scale was found to be .88, and that for the sub-scales was found to range between .90 and .51. The results showed that the Cronbach's alpha for the scale was .86, whereas it was .70 for behavior-focused strategies, .84 for constructive thought strategies and .35 for natural reward strategies. Because natural reward strategies demonstrated poor internal consistency, they were not included in data analysis.

### **Rosenberg Self-Esteem Scale (RSES)**

The 10-item Likert type scale developed by Rosenberg (1965) was used in this research to determine the university students' self-esteem. The scale was adapted into Turkish by Çuhadaroglu (1986). Rehearsal-based reliability for the scale was found to be .75, and the internal consistency coefficient between the items was found to be .71. Cronbach's alpha for the scale was .87.

### **Life Satisfaction Scale (LSS)**

The scale developed by Diener et al. (1985) was used in this study to determine the university students' life satisfaction. This scale is a 5-item and 7-point Likert type scale. The scale was adapted into Turkish by Köker (1991). The reliability coefficient for the scale based on three-week intervals was .85 using the test-retest method (76). The correlations between total item scores were found to be between .71 and .80 (77) in item analysis. Cronbach's alpha for life satisfaction scale was found to be .83.

## **Data Analysis**

The research data were analysed using SPSS version 21. Measures of central tendency (median, mean and mode), skewness and kurtosis were used in testing the normality assumption. Consequently, it was found that the measures of central tendency took on similar values and that the skewness and kurtosis values were within the  $\pm 1$  interval (Büyüköztürk, 2011). Self-esteem and life satisfaction were considered as the predicted variables, and the components of self-leadership strategies were considered as the potential predictor variables in entering the data in SPSS. Whether there were any linear correlations between the predicted and predictor variables was checked with a scatterplot in the multiple regression analysis, and linear correlations were found. The facts that the highest correlation between variables was smaller than .80 ( $r = 0.51$ ), that the VIF scores were below 10 and that the tolerance scores were above 0.2 indicated that there were no multiple correlation problems. In addition, because the Durbin Watson value (1.50-2.50) was 1.95 for self-esteem and 2.09 for life satisfaction, it was concluded that there were no autocorrelation problems (Karagöz, 2016).

## FINDINGS

### Correlations between General Self-leadership, Self-leadership Strategies, Self-esteem and Life Satisfaction

Correlation analysis was applied to demonstrate the correlations between the university students' levels of general self-leadership, self-leadership strategies (behavior-focused strategies and constructive thought strategies) with self-esteem and life satisfaction. Table 1 shows medium-level, positive and significant correlations between general self-leadership levels and self-esteem ( $r = .50, p < .01$ ) and between self-leadership levels and life satisfaction ( $r = .39, p < .01$ ). Self-esteem and life satisfaction may increase due to the increase in the level of general self-leadership. Examination of the correlations between self-esteem and the self-leadership strategies showed that the strongest correlation was behavior-focused strategies ( $r = .51, p < .01$ ), followed by constructive thought strategies ( $r = .37, p < .01$ ). Examination of the correlations between self-leadership strategies and life satisfaction showed that the highest correlation was with behavior-focused strategies ( $r = .36, p < .01$ ), followed by constructive thought strategies ( $r = .30, p < .01$ ).

**Table 1 Descriptive Statistics and Correlation Coefficients on Self-leadership, Self-leadership Strategies, Self-esteem and Life Satisfaction**

| Variables                          | 1     | 2     | 3      | 4     | 5     |
|------------------------------------|-------|-------|--------|-------|-------|
| 1. Self-esteem                     |       |       |        |       |       |
| 2. Life satisfaction               | .46** |       |        |       |       |
| 3. General self-leadership         | .50** | .39** |        |       |       |
| 4. Behavior-focused strategies     | .51** | .36** | .84**  |       |       |
| 5. Constructive thought strategies | .37** | .30** | .89**  | .51** |       |
| Mean                               | 31.09 | 23.19 | 108.43 | 44.68 | 55.60 |
| SD                                 | 4.73  | 5.66  | 12.05  | 6.09  | 6.86  |

N = 360  $p < .01$ \*\*

### Prediction of Self-esteem by Self-leadership Strategies

Multiple regression analysis was used to determine whether the university students' self-leadership strategies predicted their self-esteem. The analysis results showed that self-leadership strategies altogether predicted self-esteem significantly ( $F(2,357) = 66.941, p < .0001$ ) (see Table 2). Accordingly, 27 % of the variance in self-esteem was explained by self-leadership strategies. Of self-leadership strategies, behavior-focused strategies ( $\beta = .43, p < .0001$ ) and constructive thought strategies ( $\beta = .14, p < .006$ ) significantly predicted self-esteem.

**Table 2 Multiple Regression Analysis Results on Predicting Self-esteem**

| Predictors                      | B     | B SE | $\beta$ | t     | Zero-order | Partial r |
|---------------------------------|-------|------|---------|-------|------------|-----------|
| Constant                        | 10.48 | 1.94 |         | 5.47  |            |           |
| Behavior-focused strategies     | .34   | .04  | .43     | 8.23* | .51        | .40       |
| Constructive thought strategies | .10   | .04  | .15     | 2.76* | .37        | .15       |

$R = .52$   $R^2 = .27$   $F = 66.94$  \* $p < .0001$

### Prediction of Life Satisfaction by Self-leadership Strategies

Multiple regression analysis was used to determine whether the university students' self-leadership strategies predicted their life satisfaction in this research. Self-leadership strategies were found to have the power of prediction on life satisfaction ( $F(2,357) = 31.63, p < .0001$ ) (See Table 3). Self-leadership strategies explained 15 % of the variance in life satisfaction. Behavior-focused

strategies ( $\beta = .28, p < .0001$ ) and constructive thought strategies ( $\beta = .16, p < .006$ ) were found to be significant in predicting life satisfaction.

**Table 3 Multiple Regression Analysis Results on Predicting Life Satisfaction**

| Self-leadership Strategies      | B    | B SE | $\beta$ | t     | Zero-order | Partial r |
|---------------------------------|------|------|---------|-------|------------|-----------|
| Constant                        | 4.22 | 2.50 |         | 1.70  |            |           |
| Behavior-focused strategies     | .27  | .05  | .28     | 5.01* | .36        | .26       |
| Constructive thought strategies | .13  | .05  | .16     | 2.75* | .30        | .14       |

$R = .39$   $R^2 = .15$   $F = 31.63$  \*  $p < .0001$

## DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

The purpose of this study was to explore whether self-leadership strategies influences self-esteem and life satisfaction. General self-leadership was found to be correlated with self-esteem, which were based on subjective perception in this research. The findings obtained agree with those obtained in previous studies (Kim, 2014; Kim & Kim, 2012; Yang Choi, Kim & Kim, 2016). Relationship between general self-leadership and self-esteem supports the interpretation that self-esteem is influenced by experience and that an individual's feelings and judgements about himself will be positive depending on the success or failure of experience (Ross, 2014).

Self-esteem consists of two dimension as efficacy-based self-esteem and worth-based self-esteem (Cast & Burke, 2002). The first one point outs how individual perceives himself as capable and effective. The second one point outs the extent to which people feel that they are valuable. In their study, Erol and Orth (2011) found that individuals have higher self-esteem when sense of mastery level is high. They suggested, for many people, being a capable and control over life are favorite. In this context, self-esteem is suggested to be closely related to a sense of agency or mastery and control over environment (Lyubomirsky, Tkatch & Dmatteo, 2006). On the other hand, according to theory self-leadership, self-leadership strategies enable individual to exercise control over himself (Maykrantz & Houghton, 2018) and his environment. In addition, self-leadership leads to have control over one's life and effectiveness. Shortly self-leadership practise can increase mastery and control. Thus, self-esteem can be increased through self-leadership experience. Supporting this situation relationship between general self-leadership and self-esteem is also consistent with the ones obtained in studies concluding that self-leadership education increases self-esteem (Jung, 2005).

General self-leadership was found to be correlated with life satisfaction. This finding supports a study demonstrating the positive effects of self-leadership on life satisfaction (Yang et al, 2016). People who lead themselves are people who can control their own feelings, thoughts and behaviors. People who have control over their life engage in more satisfying activities and more satisfying activities causes more satisfaction. Such a person is competent and can accomplish a life task. Veenhoven (1996) also suggested that incompetent person will have a higher probability of encountering bad living. On the other hand self-leadership, which help in attaining high standards and achieving success, can also help increase life satisfaction.

In this study, multiple regression analysis showed that of the self-leadership strategies, behavior-focused strategies significantly contributed to self-esteem. This was consistent with the idea that self-leadership applications could have positive effects on self-esteem (Williams, 1997). Individuals can have increasingly positive feelings about themselves, and their self-esteem can increase as they become increasingly effective in self-management. On the other hand, in this study constructive thought strategies significantly contributed to self-esteem. Positive and desired thought patterns can be achieved through self-management of thought processes. Negative belief, negative self-talk and dysfunctional thought are replaced by positive, constructive and functional ones. In this case, healthy thoughts may cause the person to feel good and valuable about themselves.

In this study, the results of multiple regression analysis, showed that behavior-focused strategies and constructive thought strategies contributed to life satisfaction. Individuals can cope with stressful situations and hinder the formation of stressful situations through the effective management of their behaviors, and thus, they can increase their life satisfaction. It is suggested that behaviour-focused strategies lead to successful outcomes by encouraging positive, desirable response and by suppressing undesirable behavioral response tendencies (Neck & Houghton, 2006). Achieving desired results may lead to a positive outlook towards oneself, life, future and positive affect. On the other hand, the idea that constructive thought strategies increase subjective well-being (Houghton & Jinkerson, 2007) was supported in this study. Constructive thought strategies have been said to serve satisfaction by functioning as a source for the development of positive thought (Manz, 1992).

Results of this study contribute current literature. In previous studies, self-leadership strategies have not been studied. First of all, this study is first to investigate self-esteem and life satisfaction in terms of self-leadership strategies. The results demonstrated self-leadership strategies (behavioral focused strategies and constructive thought strategies) as a significant predictor of self-esteem and life satisfaction. Of strategies, behavior focused strategies were found to have the strongest effect on both self-esteem and life satisfaction.

The results of this study contribute to the practise. An increase in individuals' self-esteem and life satisfaction can be observed with the effective use of self-leadership strategies. Therefore, self-leadership training intervention needs to be practised in the educational system. Self-leadership strategies can be taught to children and youth in schools at earlier ages within the framework of guidance service, and thus, their self-leadership strategies can be developed. In university, the personal development of students is often neglected. University students can be assisted to learn self-leadership strategies with designed training programs for university environment. Their self-esteem and life satisfaction can be increase through these training programs.

This study had certain limitations. One of them concerned the sample and its small size, composition of only university students and higher distribution of girls than boys. For this reason, due care should be taken in generalising the research findings. The second limitation was related to the self-leadership scale that was administered to the students to determine their general self-leadership and their self-leadership strategies. The sub-scales of natural reward strategies may need revision to make them consistent with the culture, and the number of items for natural reward strategies should be increased. Despite their limitations, this study supports a positive relationship between self-leadership strategies and self-esteem and life satisfaction.

In sum, studies on self-leadership, which leads one to more effectively and efficiently manage oneself, can be performed in the fields of education and psychology in addition to the fields of management and business. Such studies can contribute mainly to the study of self-leadership and to the development of human potential and well-being. In addition, related studies can shed light on the solutions to educational, social and emotional problems. It is assumed that internal forces rather than external forces direct behaviors in the process of self-leadership (Stewart et al, 2011). In a sense, self-leadership is an individual's use of the effects he has on himself. Individuals with self-leadership strategies choose the environments and activities in which they can achieve success, fulfil these activities or tasks, feel proud of themselves (self-esteem) and are satisfied with life.

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## **The Investigation of the Relationship between University Students' Leisure and Life Satisfaction Levels**

**Murat Özmaden<sup>i</sup>**

Adnan Menderes University

### **Abstract**

The purpose of this study was to investigate the relationship between leisure satisfaction and life satisfaction levels of university students and to determine whether these parameters differ in terms of various variables. In the study, the Leisure Satisfaction Scale, which was developed by Beard and Ragheb (1980) and adapted to Turkish by Gökçe and Orhan (2011) was applied to determine the participants' leisure satisfaction levels and Life Satisfaction Scale developed by Diener et al. (1985) and adapted to Turkish by Köker (1991) was used to measure the life satisfaction levels of the participants. The convenience sampling method was chosen for sampling and face-to-face method was used for data collection. SPSS package program was used for analysis of obtained data. Pearson Correlation, Regression, and Multivariate variance analysis were used for data showing normal distribution according to Skewness-Kurtosis values. Totally, 1418 participants [651 males (45.9%) and 767 females (54.1%)] participated in the research voluntarily. According to the findings of current research, it was determined that there was a positive correlation between life satisfaction and all sub-scales of leisure satisfaction. When MANOVA results were examined according to gender, it was found that there was a significant difference in all sub-scales of leisure satisfaction scale. As a result; leisure satisfaction sub-scales (aesthetic and physical) have a positive impact on life satisfaction.

**Keywords:** Leisure Satisfaction, Life Satisfaction, University Student

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<sup>i</sup> **Murat Özmaden**, Assist. Prof. Dr., Aydın Adnan Menderes University, Antrenörlük Eğitimi

**Correspondence:** muratozmaden@yahoo.com

## INTRODUCTION

The role of time in society is highly significant in terms of fast-moving technology and ever-changing living standards (Henderson, 2010). However, due to these changing standards, the need for a special time in the inactive life of the individual reveals the importance of the concept of leisure (Ceyhun, 2008). Leisure time; apart from the time spent on things that the individual does to continue his life (Mull et al., 1997), is defined as time periods that the individual can use freely, have pleasure, and gain increased personal satisfaction (Özdemir et al., 2006), and that are used for personal preferences not including times spent by the individual for his/her life (Sabbağ and Aksoy, 2011) and have a positive effect on their lives (Soyer et al., 2017). Leisure activities play an important role in the social development of the people (Mahoney and Stattin, 2000), reducing the stress and tension caused by intense workload and making individuals feel good about themselves psychologically and physically (Coleman and Ahola, 1993, Trenbeth et al., 1999; Ayhan, Eskiler and Soyer, 2017).

Even though the purpose of individuals for participating in leisure activities is different, there is a point that is true for everyone. Individuals use these activities to take pleasure and to be satisfied as a result of this pleasure (Çelik, 2011). Satisfaction is described as meeting emotional requirements such as motivation, expectation, and needs before the happenings (Kovacs, 2007). Leisure satisfaction means positive emotions that individuals achieved as a result of their participation in leisure activities (Beard and Raghep, 1980), how satisfied they are with their leisure (Kovacs, 2007; Ayhan, Eskiler and Emir, 2018) and meeting their interests, desires, and needs with such activities (Mannel and Kleiber, 1997). To reach their desires through leisure activities and to measure their level of happiness in their participation have an important role in developing leisure activities and expanding the activity spectrum in the direction of satisfaction indicators of the participants (Karli et al., 2008). However, there are limited studies on participation in leisure activities that will contribute to the physical and psychological development of the individual (Eskiler and Karataş, 2017). It is thought that leisure activities, which have an important role in the development of satisfying feelings, may have significant effects on life satisfaction.

Life satisfaction, which has been among subjects that have become the focus of humanity throughout the ages, is described as the result of the comparison of the individual's expectations with what the individual has (Sung-Mook et al., 1994, Haybron, 2004; Çevik and Korkmaz, 2014), the individual's positive evaluation of his/her own life with his/her own means (Diener et al., 1985; Veenhoven, 1996) and the combination of beliefs and desires on life (Rice, Frone and McFarlin 1992) and the merge of the concepts of happiness and subjective well-being (Sirgy, 2012). Leisure activities are at the level of self-actualization within the Maslow's hierarchy of needs (Yüncü et al., 2003). Individuals who reach the stage of self-actualization meet all their needs and attained the level of life satisfaction (Çetinkanat, 2000). Therefore, it is thought that the individuals who reach the saturation point with the leisure activities can realize the life satisfaction.

The leisure activities that individuals perform to achieve happiness and satisfaction are extremely important in every period of their life (Soyer et al., 2017). University education especially has an important place in the lives of individuals. This period is one of the periods when socio-economic and academic aspects of the process of adopting social values and taking adult steps are realized in the clearest way and the behaviors that will continue for years will occur. (Ağaoğlu and Eker, 2006; Tel and Sarı, 2016). With the increase of technological developments, the time that students spend for themselves and their surroundings decreases, and this situation causes them to be isolated from themselves and the society they live in (Ekinçi, Yalçın, and Soyer, 2017). The physical activities performed by the individual in his / her leisure during the education period are very significant (Işık, Özarslan and Bekler, 2015). Leisure activities participated in the non-curricular periods increase the happiness and satisfaction level of the university students and make them achieve the level of satisfaction and get rid of the feeling of loneliness.

There is a limited number of studies in the literature despite the positive contributions of leisure satisfaction and life satisfaction to university students (Kwan, 2008, Kong and You, 2013,

Suldo and Huebner, 2006, Chen, Li and Chen, 2013). In this context, the aim of the study was to measure the effect of the leisure satisfaction levels of university students on life satisfaction. This result will not only contribute to the literature but also help us overcome the deficiencies in the relevant area.

## **METHOD**

### **Study Model**

The research was grounded in quantitative research design. It was adopted general survey model which scanned on a sample that would be taken from it or all of population in an attempt to pass a general judgment on the population in a population consisting of scores of members. (Karasar, 2012).

### **Sample Group**

A total of 1418 extreme athletes 651 male (45,9 %), 767 female (54,1 %) who were voluntarily participated in the study and chosen with convenience sampling method. Participants were contacted face-to-face and subsequently given a paper copy of the self-administered questionnaire. A total of 1504 questionnaires were returned, and 86 questionnaires were judged unusable, leaving a final sample size of  $n = 1418$ .

### **Data Collection Tools**

In the study, "Leisure Satisfaction Scale" developed by Beard and Ragheb (1980) and adapted to Turkish by Gökçe and Orhan (2011) was used to determine the levels of leisure satisfaction of the participants. The scale consists of 6 sub-scales and 24 expressions. Leisure Satisfaction Scale in 5-point rating and all expressions on the scale are scored between 1 and 5 according to the levels of "Almost never true",....., "Almost always true". In addition, the Life Satisfaction Scale developed by Diener et al. (1985) and adapted into Turkish by Köker (1991) was used to determine the level of life satisfaction of participants. Life Satisfaction scale consists of 5 items. The scale is 7 Likert scale.

### **Data Analysis**

SPSS package program was used for analysis of obtained data. For descriptive statistics, frequency (f) and percent (%) distributions of variables were calculated. Skewness and Kurtosis values were checked to determine whether the data had normal distributions. These values were checked and evaluated between +2 and -2 (George & Mallery, 2003). As a result of this evaluation, the data showed normal distribution. In this direction; Pearson Correlation Analysis, Regression Analysis and MANOVA to reduce Type 1 error risk were applied. In order to do this: 05 value is divided by the number of dependent variables and the new value obtained is considered as a new probability value for the differences between the groups to be considered statistically significant (Pallant, 2015/2017). Accordingly in this study, 007 value obtained by dividing, 05 value into 7 dependent variables (Psychological, Educational, Social, Physical, Relaxing, Aesthetic, Life Satisfactory) was taken as the cut-off point, and values lower than this value were accepted as a new probability value for the differences between the groups to be considered as statistically significant.

## RESULTS

**Table 1. Descriptive Statics**

| Variables                       |                | F   | %    |
|---------------------------------|----------------|-----|------|
| Gender                          | Man            | 651 | 45,9 |
|                                 | Woman          | 767 | 54,1 |
| Grade point Average             | 2.00 and below | 268 | 18,9 |
|                                 | 2.01-2.50      | 359 | 25,3 |
|                                 | 2.51-3.00      | 470 | 33,1 |
|                                 | 3.01-3.50      | 271 | 19,1 |
|                                 | 3.51-4.00      | 50  | 3,5  |
| Have difficulty in leisure time | Always         | 191 | 13,5 |
|                                 | Sometimes      | 906 | 63,9 |
|                                 | Never          | 321 | 22,6 |

n=1418

When descriptive statistics on sex were examined, it was determined that 54.1% of the participants were female and 45.9% were male. The highest percentage of the participants in the grade point average was in the range of 2.51-3.00 (33,1%) and this was followed by 2.01-2.50 (25,3%), 3.01-3.50 (19,1%), 2.00 and below (18,9%), 3,51 - 4.00 (3.5%). When the difficulty in the leisure was examined, it was found that 63.9% of the participants sometimes had difficulty, 22.6% never had difficulty and 13.5% always had difficulty.

**Table 2. Analysis of correlation between leisure satisfaction and life satisfaction**

| Variables             |        | 1              | 2              | 3              | 4              | 5              | 6              |
|-----------------------|--------|----------------|----------------|----------------|----------------|----------------|----------------|
| Psychological (1)     | R<br>P |                |                |                |                |                |                |
| Educational (2)       | R<br>P | ,704**<br>,000 |                |                |                |                |                |
| Social (3)            | R<br>P | ,622**<br>,000 | ,732**<br>,000 |                |                |                |                |
| Physical (4)          | R<br>P | ,698**<br>,000 | ,694**<br>,000 | ,681**<br>,000 |                |                |                |
| Relief (5)            | R<br>P | ,589**<br>,000 | ,607**<br>,000 | ,616**<br>,000 | ,651**<br>,000 |                |                |
| Aesthetics (6)        | R<br>P | ,458**<br>,000 | ,541**<br>,000 | ,622**<br>,000 | ,541**<br>,000 | ,591**<br>,000 |                |
| Life Satisfaction (7) | R<br>P | ,159**<br>,000 | ,159**<br>,000 | ,196**<br>,000 | ,183**<br>,000 | ,185**<br>,000 | ,232**<br>,000 |

According to the Table, it was determined that there was a positive relationship between life satisfaction and all sub-scales of leisure satisfaction ( $p < 0,05$ ).

**Table 3. Descriptive Statistics on Leisure Satisfaction and Life Satisfaction by Gender of Participants**

| Variables     | Gender | Mean | SD  | n    |
|---------------|--------|------|-----|------|
| Psychological | Man    | 3,86 | ,81 | 651  |
|               | Woman  | 3,55 | ,87 | 767  |
|               | Total  | 3,69 | ,86 | 1418 |

|                   |       |       |      |      |
|-------------------|-------|-------|------|------|
| Educational       | Man   | 3,98  | ,85  | 651  |
|                   | Woman | 3,60  | ,94  | 767  |
|                   | Total | 3,77  | ,92  | 1418 |
| Social            | Man   | 3,86  | ,81  | 651  |
|                   | Woman | 3,48  | ,94  | 767  |
|                   | Total | 3,65  | ,90  | 1418 |
| Physical          | Man   | 4,08  | ,78  | 651  |
|                   | Woman | 3,82  | ,90  | 767  |
|                   | Total | 3,94  | ,86  | 1418 |
| Relief            | Man   | 3,81  | ,77  | 651  |
|                   | Woman | 3,46  | ,80  | 767  |
|                   | Total | 3,62  | ,80  | 1418 |
| Aesthetics        | Man   | 3,67  | ,86  | 651  |
|                   | Woman | 3,42  | ,93  | 767  |
|                   | Total | 3,54  | ,91  | 1418 |
| Life Satisfaction | Man   | 20,14 | 7,00 | 651  |
|                   | Woman | 20,48 | 6,79 | 767  |
|                   | Total | 20,33 | 6,89 | 1418 |

When the analysis results were concerned, it was found that the average scores of male participants in all sub-scales of leisure satisfaction were higher than female. On the other hand, in the life satisfaction variable, the average score of female participants was higher than male participants.

**Table 4. MANOVA Results on Leisure Satisfaction and Life Satisfaction by Gender**

| Source | Dependent Variable | Type III Sum of Squares | df   | Mean Square | p     | R Squared | Adjusted R Squared |
|--------|--------------------|-------------------------|------|-------------|-------|-----------|--------------------|
| Gender | Psychological      | 33,859                  | 1    | 33,859      | ,000* | ,033      | ,032               |
|        | Educational        | 49,354                  | 1    | 49,354      | ,000* | ,041      | ,041               |
|        | Social             | 48,774                  | 1    | 48,774      | ,000* | ,043      | ,042               |
|        | Physical           | 24,367                  | 1    | 24,367      | ,000* | ,023      | ,023               |
|        | Relief             | 42,809                  | 1    | 42,809      | ,000* | ,047      | ,046               |
|        | Aesthetics         | 21,471                  | 1    | 21,471      | ,000* | ,018      | ,018               |
|        | Life Satisfaction  | 42,022                  | 1    | 42,022      | ,347  | ,001      | ,000               |
| Error  | Psychological      | 1007,553                | 1416 | ,712        |       |           |                    |
|        | Educational        | 1145,151                | 1416 | ,809        |       |           |                    |
|        | Social             | 1096,697                | 1416 | ,775        |       |           |                    |
|        | Physical           | 1017,484                | 1416 | ,719        |       |           |                    |
|        | Relief             | 875,296                 | 1416 | ,618        |       |           |                    |
|        | Aesthetics         | 1142,650                | 1416 | ,807        |       |           |                    |
|        | Life Satisfaction  | 67183,104               | 1418 | 47,446      |       |           |                    |
| Total  | Psychological      | 20334,875               | 1418 |             |       |           |                    |
|        | Educational        | 21379,625               | 1418 |             |       |           |                    |
|        | Social             | 20077,313               | 1418 |             |       |           |                    |
|        | Physical           | 23027,375               | 1418 |             |       |           |                    |
|        | Relief             | 19489,938               | 1418 |             |       |           |                    |
|        | Aesthetics         | 18891,688               | 1418 |             |       |           |                    |
|        | Life Satisfaction  | 653015,000              | 1418 |             |       |           |                    |

Wilks Lambda= 0,936;  $F_{(1,1416)}=15,377$ ;  $p=0,000$

\* $p<0,007$

According to the Table, statistically significant differences were determined in all sub-scales of leisure satisfaction according to gender ( $p < 0.007$ ). However, there was no statistically significant difference in life satisfaction according to gender ( $p > 0,007$ ).

**Table 5. Descriptive Statistics on Leisure Satisfaction and Life Satisfaction by Average Grade of Participants**

| Dependent Variable | Grade Average  | Mean  | S.D. | n    |
|--------------------|----------------|-------|------|------|
| Psychological      | 2.00 and below | 3,63  | ,85  | 268  |
|                    | 2.01-2.50      | 3,69  | ,88  | 359  |
|                    | 2.51-3.00      | 3,74  | ,82  | 470  |
|                    | 3.01-3.50      | 3,66  | ,91  | 271  |
|                    | 3.51-4.00      | 3,62  | ,83  | 50   |
|                    | Total          | 3,69  | ,86  | 1418 |
| Educational        | 2.00 and below | 3,69  | ,87  | 268  |
|                    | 2.01-2.50      | 3,80  | ,95  | 359  |
|                    | 2.51-3.00      | 3,83  | ,88  | 470  |
|                    | 3.01-3.50      | 3,76  | ,96  | 271  |
|                    | 3.51-4.00      | 3,53  | ,99  | 50   |
|                    | Total          | 3,77  | ,92  | 1418 |
| Social             | 2.00 and below | 3,55  | ,82  | 268  |
|                    | 2.01-2.50      | 3,70  | ,86  | 359  |
|                    | 2.51-3.00      | 3,73  | ,92  | 470  |
|                    | 3.01-3.50      | 3,62  | ,95  | 271  |
|                    | 3.51-4.00      | 3,41  | 1,04 | 50   |
|                    | Total          | 3,65  | ,90  | 1418 |
| Physical           | 2.00 and below | 3,88  | ,82  | 268  |
|                    | 2.01-2.50      | 3,97  | ,84  | 359  |
|                    | 2.51-3.00      | 3,98  | ,86  | 470  |
|                    | 3.01-3.50      | 3,92  | ,89  | 271  |
|                    | 3.51-4.00      | 3,70  | ,94  | 50   |
|                    | Total          | 3,94  | ,86  | 1418 |
| Relief             | 2.00 and below | 3,59  | ,74  | 268  |
|                    | 2.01-2.50      | 3,65  | ,78  | 359  |
|                    | 2.51-3.00      | 3,61  | ,83  | 470  |
|                    | 3.01-3.50      | 3,61  | ,85  | 271  |
|                    | 3.51-4.00      | 3,62  | ,87  | 50   |
|                    | Total          | 3,62  | ,80  | 1418 |
| Aesthetics         | 2.00 and below | 3,45  | ,83  | 268  |
|                    | 2.01-2.50      | 3,60  | ,87  | 359  |
|                    | 2.51-3.00      | 3,55  | ,95  | 470  |
|                    | 3.01-3.50      | 3,54  | ,95  | 271  |
|                    | 3.51-4.00      | 3,39  | ,86  | 50   |
|                    | Total          | 3,54  | ,91  | 1418 |
| Life Satisfaction  | 2.00 and below | 18,74 | 6,94 | 268  |
|                    | 2.01-2.50      | 19,89 | 6,72 | 359  |
|                    | 2.51-3.00      | 21,17 | 6,79 | 470  |
|                    | 3.01-3.50      | 20,89 | 7,04 | 271  |
|                    | 3.51-4.00      | 20,92 | 6,40 | 50   |
|                    | Total          | 20,33 | 6,89 | 1418 |

According to the results of the analysis, it was determined that those who had an average of 2.51-3.00 grades in the psychological, educational, social and physical sub-scales of leisure satisfaction and life satisfaction variables had higher average scores than the others. On the other hand, it was determined that those who had an average of 2.01-2.50 in the relaxation and aesthetic sub-scales had higher scores on the sub-scales than those who had the other grade averages.

**Table 6. MANOVA Results on Leisure Satisfaction and Life Satisfaction by Average of Scores**

| Source        | Dependent Variable | Type III Sum of Squares | df   | Mean Square | p     | R Squared | Adjusted R Squared | Post-Hoc Results |
|---------------|--------------------|-------------------------|------|-------------|-------|-----------|--------------------|------------------|
| Grade Average | Psychological      | 2,628                   | 4    | ,657        | ,467  | ,003      | ,000               |                  |
|               | Educational        | 6,465                   | 4    | 1,616       | ,104  | ,005      | ,003               |                  |
|               | Social             | 9,382                   | 4    | 2,345       | ,020  | ,008      | ,005               |                  |
|               | Physical           | 5,073                   | 4    | 1,268       | ,141  | ,005      | ,002               |                  |
|               | Relief             | ,656                    | 4    | ,164        | ,908  | ,001      | -,002              |                  |
|               | Aesthetics         | 4,580                   | 4    | 1,145       | ,233  | ,004      | ,001               |                  |
|               | Life Satisfaction  | 1175,833                | 4    | 293,958     | ,000* | ,017      | ,015               | A-C; A-D         |
| Error         | Psychological      | 1038,785                | 1413 | ,735        |       |           |                    |                  |
|               | Educational        | 1188,041                | 1413 | ,841        |       |           |                    |                  |
|               | Social             | 1136,089                | 1413 | ,804        |       |           |                    |                  |
|               | Physical           | 1036,778                | 1413 | ,734        |       |           |                    |                  |
|               | Relief             | 917,449                 | 1413 | ,649        |       |           |                    |                  |
|               | Aesthetics         | 1159,541                | 1413 | ,821        |       |           |                    |                  |
|               | Life Satisfaction  | 66049,293               | 1413 | 46,744      |       |           |                    |                  |
| Total         | Psychological      | 20334,875               | 1418 |             |       |           |                    |                  |
|               | Educational        | 21379,625               | 1418 |             |       |           |                    |                  |
|               | Social             | 20077,313               | 1418 |             |       |           |                    |                  |
|               | Physical           | 23027,375               | 1418 |             |       |           |                    |                  |
|               | Relief             | 19489,938               | 1418 |             |       |           |                    |                  |
|               | Aesthetics         | 18891,688               | 1418 |             |       |           |                    |                  |
|               | Life Satisfaction  | 653015,000              | 1418 |             |       |           |                    |                  |

Wilks Lambda= 0,936; F(4,1413) =1,792; p<0,000 – A: 2.00 and below; B: 2.01-2.50; C: 2.51-3.00; D:3.01-3.50; E: 3.51-4.00

\*p<0,007

When the analysis results were analyzed, there was no statistically significant difference in the sub-scales of leisure satisfaction according to gender ( $p > 0,007$ ) whereas there was a statistically significant difference in life satisfaction variable ( $p < 0,007$ ). According to this, it was determined that there was a difference between the life satisfaction scores of the participants with an average of 2.00 and below and the participants with the average of 2.51-3.00 and 3.01-3.50.

**Table 7. Descriptive Statistics of Leisure Satisfaction and Life Satisfaction by the Difficulty Degree of Participants in Leisure**

| Variables     | Have difficulty in leisure | Mean | S.D. | n    |
|---------------|----------------------------|------|------|------|
| Psychological | Always                     | 3,62 | ,99  | 191  |
|               | Sometimes                  | 3,68 | ,83  | 906  |
|               | Never                      | 3,75 | ,86  | 321  |
|               | Total                      | 3,69 | ,86  | 1418 |

|                   |           |       |      |      |
|-------------------|-----------|-------|------|------|
| Educational       | Always    | 3,60  | 1,04 | 191  |
|                   | Sometimes | 3,79  | ,90  | 906  |
|                   | Never     | 3,82  | ,89  | 321  |
|                   | Total     | 3,77  | ,92  | 1418 |
| Social            | Always    | 3,49  | ,96  | 191  |
|                   | Sometimes | 3,67  | ,88  | 906  |
|                   | Never     | 3,69  | ,90  | 321  |
|                   | Total     | 3,65  | ,90  | 1418 |
| Physical          | Always    | 3,83  | ,94  | 191  |
|                   | Sometimes | 3,94  | ,83  | 906  |
|                   | Never     | 4,00  | ,89  | 321  |
|                   | Total     | 3,94  | ,86  | 1418 |
| Relief            | Always    | 3,52  | ,89  | 191  |
|                   | Sometimes | 3,61  | ,79  | 906  |
|                   | Never     | 3,69  | ,79  | 321  |
|                   | Total     | 3,62  | ,80  | 1418 |
| Aesthetics        | Always    | 3,33  | ,99  | 191  |
|                   | Sometimes | 3,54  | ,88  | 906  |
|                   | Never     | 3,66  | ,92  | 321  |
|                   | Total     | 3,54  | ,91  | 1418 |
| Life Satisfaction | Always    | 17,54 | 7,04 | 191  |
|                   | Sometimes | 20,42 | 6,66 | 906  |
|                   | Never     | 21,70 | 6,98 | 321  |
|                   | Total     | 20,33 | 6,89 | 1418 |

According to the analysis results, it was determined that for all variables, the average score of those who had never had difficulty in their leisure was higher than those who had sometimes and always had difficulties.

**Table 8. Results of MANOVA Analysis on Leisure Satisfaction and Life Satisfaction by Difficulties in Leisure**

| Source                     | Dependent Variable | Type III Sum of Squares | df   | Mean Square | p     | R Squared | Adjusted R Squared | Source              |
|----------------------------|--------------------|-------------------------|------|-------------|-------|-----------|--------------------|---------------------|
| Have difficulty in leisure | Psychological      | 2,193                   | 2    | 1,097       | ,225  | ,002      | ,001               |                     |
|                            | Educational        | 6,532                   | 2    | 3,266       | ,021  | ,005      | ,004               |                     |
|                            | Social             | 5,973                   | 2    | 2,987       | ,025  | ,005      | ,004               |                     |
|                            | Physical           | 3,665                   | 2    | 1,832       | ,083  | ,004      | ,002               |                     |
|                            | Relief             | 3,390                   | 2    | 1,695       | ,073  | ,004      | ,002               |                     |
|                            | Aesthetics         | 13,036                  | 2    | 6,518       | ,000* | ,011      | ,010               | A-B;<br>A-C         |
|                            | Life Satisfaction  | 2098,985                | 2    | 1049,492    | ,000* | ,031      | ,030               | A-B;<br>A-C;<br>B-C |
| Error                      | Psychological      | 1039,219                | 1415 | ,734        |       |           |                    |                     |
|                            | Educational        | 1187,973                | 1415 | ,840        |       |           |                    |                     |

|   |                   |           |      |        |
|---|-------------------|-----------|------|--------|
|   | Social            | 1139,497  | 1415 | ,805   |
|   | Physical          | 1038,187  | 1415 | ,734   |
|   | Relief            | 914,715   | 1415 | ,646   |
|   | Aesthetics        | 1151,085  | 1415 | ,813   |
|   | Life Satisfaction | 65126,14  | 1415 | 46,026 |
| Total   | Psychological     | 20334,88  | 1418 |        |
|   | Educational       | 21379,63  | 1418 |        |
|   | Social            | 20077,31  | 1418 |        |
|   | Physical          | 23027,38  | 1418 |        |
|   | Relief            | 19489,94  | 1418 |        |
|   | Aesthetics        | 18891,69  | 1418 |        |
|   | Life Satisfaction | 653015,00 | 1418 |        |
| *p<0,007; Wilks Lambda= 0,959; F <sub>(2,1415)</sub> =4,211; p= 0,000 – A: Always; B: Sometimes; C: Never |                   |           |      |        |

When the analysis results were analyzed, it was determined that there was no statistically significant difference in Psychological, Educational, Social, Physical and Relaxation sub-scales of leisure satisfaction according to the degree of difficulty in leisure ( $p > 0,007$ ), while there was a statistically significant difference in Aesthetic sub-scale of leisure satisfaction and Life Satisfaction Variable according to the degree of difficulty in leisure time ( $p < 0,007$ ). According to this, it was observed that there was a difference between the averages of the aesthetic sub-scale scores of those who always had difficulty, those who had difficulty sometimes and those who never had difficulty in their leisure time. In addition, it was determined that there was a difference between those who had always had difficulty in their leisure time with those who had had difficulty sometimes, and those who had never had difficulty, those who had difficulties sometimes and those had no difficulty.

**Table 9. Results of Regression Analysis on Life Satisfaction and Leisure Satisfaction**

| Model                                 |            | $\beta$ | t     | P    | F                | R <sup>2</sup> |
|---------------------------------------|------------|---------|-------|------|------------------|----------------|
| 1                                     | (Constant) |         | 19.64 | .000 | 80.895           | .053           |
|                                       | Aesthetics | .232    | 8.99  | .000 |                  |                |
| 2                                     | (Constant) |         | 14.31 | .000 | 44.128           | .057           |
|                                       | Aesthetics | .188    | 6.15  | .000 |                  |                |
|                                       | Physical   | .081    | 2.65  | .008 |                  |                |
| Dependent Variable: Life Satisfaction |            |         |       |      | Method: Stepwise |                |

According to the Table, it was determined that the regression models were statistically significant. In Model 1, the aesthetic sub-scale of the leisure satisfaction predicts the life satisfaction at the rate of 5% ( $F = 80.895$ ,  $p < .01$ ). In Model 2, the aesthetics and physical sub-scales of the leisure satisfaction predict the life satisfaction at the rate of 6% ( $F = 44,128$ ,  $p < .01$ ). According to the results of gradual regression analysis (analysis was completed in two steps) in Model 2; the aesthetic sub-scale ( $\beta = .188$ ,  $p < .01$ ) was determined as the variable which has the strongest effect. This variable is followed by the physical sub-scale ( $\beta = .081$ ,  $p < .01$ ).

## DISCUSSION AND CONCLUSION

In this study, the relationship between leisure satisfaction and life satisfaction of university students and whether these parameters differ in terms of various variables were investigated. According to the results of the analysis, it was determined that scores of participants have difficulty in their leisure time (77.4%). Several studies have similar results with this study (Karaküçük and Gurbuz, 2007; Tolukan, 2010; Coruh, 2013; Karaçar and Paslı, 2014). Güngörmüş (2006) have reported that in the study on the teaching staff who work in the schools of physical education and

sports, it is observed that the rate of difficulty in evaluating the leisure is low and they usually do not have difficulty. The result does not support the result of this study. It is thought that this situation may be caused by differences in the sample groups.

When the results related to leisure and life satisfaction were investigated, it was determined that there was a positive relation between all sub-scales of leisure satisfaction and life satisfaction. Accordingly, it is thought that life satisfaction levels will increase as participants' leisure satisfaction increases. There are various studies obtained similar results in the related literature (Ragheb and Griffith, 1982, Kinnney and Coyle, 1992, Brown and Frankel, 1993, Huang and Carleton, 2003, Kovacs, 2007, Wang et al. 2008; Agyar, 2014; Chick et al., 2016). It is known that leisure activities are seen in the self-actualization degree, which is the highest degree of Maslow's hierarchy of needs (Karaküçük, 1999). This need is related to one's self-consciousness, the realize one's potential and the self-actualization (Çetinkanat, 2000: 12). In Maslow's hierarchy of needs, individuals cannot upgrade if they cannot satisfy their basic needs (Diener, Lucas and Oishi, 2002). It may be thought that individuals in this degree achieve satisfaction level after satisfying their needs. Hence, it can be told that the life satisfaction of the individuals who are satisfied their leisure satisfaction will also increase.

In accordance with the results of the regression analysis, it is possible to say those esthetics and physical sub-scales estimate the life satisfaction at about the rate of 6%. On the other hand, it is thought that life satisfaction can be estimated by factors such as their positive sense of self, economic conditions, social relations, the satisfaction of daily life, subjective well-being and job satisfaction. Similar results were obtained in related studies (Brown and Frankel, 1993; Wang et al. 2008).

When investigating the analysis results of MANOVA related to gender, it was deduced that there was an significant difference in all scales of leisure satisfaction according to gender. There are supporting results in related studies. (Vong, 2005; Serdar and Ay, 2016). It is thought that this situation may change from the point of view of the leisure activities of men and women and the fact that men are more free than women in participation in activities (Ayhan et al., 2018). When the MANOVA analysis of the mean grade was analyzed, there was no statistically significant difference in the leisure satisfaction sub-scales, while the difference in life satisfaction. It was determined to cause that arithmetic mean of the difference was between the arithmetic mean of participants who had 2.00 and below and 2.51- 3.00 and 3.01- 3.50. As a result, the life satisfaction level of individuals who were satisfied in their leisure time was also obtained to increase.

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## **Analyze of the Science and Technology Course TEOG Questions based on the Revised Bloom Taxonomy and their Relation between the Learning Outcomes of the Curriculum**

**Seraceddin Levent Zorluoğlu<sup>i</sup>**  
Süleyman Demirel University

**Kübra Elif Bağrıyanık<sup>ii</sup>**  
Artvin Çoruh University

**Ayşe Şahintürk<sup>iii</sup>**  
Artvin Çoruh University

### **Abstract**

Students who are getting education in our country are subject to various exams in order to be placed in a higher education. Since 2013-2014 academic year, Transition from Primary Education to Secondary Education (TEOG) exam has started to be applied for secondary education. TEOG exam questions are prepared in such a way to include teaching program achievements/learning outcomes published by the Ministry of National Education. In this study, the relations between the levels of the TEOG exam science and technology course questions and the 8th class achievements of the Science and Technology course curriculum in the renewed Bloom taxonomy were examined. In the research, data were subjected to descriptive analysis using the document analysis method. A total of 120 Science and Technology questions of the TEOG exams held between 2013 and 2016 were included in the study but 118 of the questions were analyzed since two of the questions were canceled. At the end of the research, it was determined that 58 questions from the Science and Technology course of Semester I included in the TEOG exam were the questions related to the 31 learning outcomes of the total of 34 outcomes included in the examination program. It was observed that 60 questions from the Science and Technology course of Semester II were related to the 42 learning outcomes of the total of 96 outcomes included in the program. In addition, it was also determined that there was no question in TEOG related to some of the course units.

**Keywords:** TEOG, Science and Technology Curriculum, Revised Bloom Taxonomy, Learning outcome.

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<sup>i</sup> **Seraceddin Levent Zorluoğlu**, Assist. Prof. Dr., Süleyman Demirel University, Education Faculty, Department of Mathematics and Science Education

**Correspondence:** leventzorluoglu@hotmail.com

<sup>ii</sup> **Kübra Elif Bağrıyanık**, Res. Assist, Süleyman Demirel University, Education Faculty,

<sup>iii</sup> **Ayşe Şahintürk**, Res. Assist, Süleyman Demirel University, Education Faculty,

## INTRODUCTION

Curricula are required in order to help the learning process to be carried out in a planned, programmed and productive manner. A curriculum is a system of learning experiences that is created in order to provide to an individual, all the activities related to the teaching-learning processes of a course, both in the school and outside the school (Demirel, 2015). With the curricula, it is aimed to allow individuals to learn by experiencing and to lead to a change in behavior of the individuals (Arseven, Şimşek and Güden, 2016; Eryaman, 2010; Uslu and Akgün, 2016). In science curricula, it is aimed to educate individuals who research, question, make effective decisions, solve problems, are active in collaborative processes and able to communicate effectively (Ministry of National Education [MONE], 2006). In line with the general objectives of the applied Science and Technology Curriculum of National Education in Turkey, constructivist approach philosophy was adopted and published in 2006 (MONE, 2006).

In a curriculum, the desired improvements regarding the individuals are expressed with learning outcomes. Achievements defined as the level of achieving the program objectives (Demirel, 2011) are of great importance in reaching the general objectives of MoNE. It is also important to determine the levels of the individuals in terms of these learning outcomes. Therefore, measurement and assessment studies are included in determining the level of the learning outcomes of the individuals.

Measurement and assessment works are carried out for various purposes in education. If it is aimed to maximize the efficiency in learning by determining the deficiencies and difficulties in learning then the evaluation is aimed at shaping and training. If the aim is to reveal the development of the individual in various directions in detail, then the assessment should be carried out according to recognition and placement. The aim of the assessments carried out at the end of the training period at the end of the specific phases of the teaching process is to determine the level of learning (Özçelik, 2010).

In Turkey, secondary education placement process is conducted through a central examination. Between 1998 and 2012, exams were held for the same purpose under different names. These were; The High School Entrance Exam (LGS), Secondary Education Institutions Selection and Placement Examination (OKS), SBS (Level Determining Exam) conducted in the 6th, 7th and 8th grade, and the SBS administered only in the 8th grade. Starting from 2013, the Transition from Primary to Secondary Education (TEOG) exam has started to be applied for secondary school students. Within the scope of TEOG, the exams are held for six core courses in each semester of the academic year. One of these courses is the Science and Technology course. In TEOG, prepared according to the Science and Technology curriculum learning outcomes published before the new Science Course curriculum which is gradually applied in 2013-2014 academic year, there are 20 questions that include this course in each exam period. It is required to have questions in the exam in line with the learning outcomes and in accordance with the plan determined as per the curriculum based on the academic schedule. It is stated that the TEOG exam was conducted in order to observe and evaluate the learning outcomes of the students objectively. At the same time, since the scores received from this examination are used in the transition to secondary education, it is observed that the TEOG exam serves both the purposes of level determination and also recognition and placement, as it was the case in the previous exams.

In order to ensure that the learning outcomes of the students are monitored and assessed in an objective manner, the objectivity and scientific relevance of the exam questions prepared for this purpose must be questioned. One of the suitable scientific tools to examine this is the Bloom Taxonomy, which is commonly known to the educators in our country.

Anderson and Krathwohl (2001) found that, regarding the taxonomy developed by Bloom, it was not enough to assess only the cognitive dimensions of the learning outcomes - former name objectives - and that the taxonomy was complicated (Tanik and Saraçoğlu, 2011; Tutkun and Okay,

2012; Zorluoglu, Kızılaslan and Sözbilir, 2016). Therefore, it has been suggested that, in addition to the "cognitive process dimension" steps of learning outcomes, the simultaneous evaluation of the "knowledge dimension" steps could fix the said complexity (Anderson and Krathwohl, 2001). In line with this suggestion, the revised Bloom taxonomy (RBT) is required to be used not only in the recording of the learning outcomes but also in the teaching process and in the assessment of teaching. (Kotluk ve Yayla, 2016; Näsström, 2009; Zorluoglu, Güven and Korkmaz, 2017).

With education, educating individuals who have acquired the knowledge, skills and understanding required by the era, who are creative, who are not memorizing subjects but learning by understanding them, who are critical thinking, questioning, researching, knowing the ways of accessing information, constructing their own knowledge in their mind, synthesizing the information they receive and producing new information, having the power to analyze, are able to use the information in new situations, and who are analytical thinkers, and capable of exploration, has been the target of the education system (MEB, 2006). For this purpose, it is necessary to write down the learning outcomes, to ensure that the students achieve such outcomes and to evaluate the achievements of the students by Anderson and Krathwohl (2001) RBT steps.

The RBT table (Table 1) is drawn up based on the cognitive process dimension which is the horizontal column, and a constructivist approach aimed at meaningful learning. It consists of six steps: *remembering, understanding, applying, analyzing, evaluating and creating*. The *remembering step* means the recollection of the information from the long-term memory; *the understanding step* refers to the restructuring and phrasing of the verbal or written education entries by the students' own sentences; *the application step* is the problem solving process related to the information that the individual learns, and the practice and exercise process; *the analysis step* refers to the process of determining how the part-whole and whole-part relation is; *the evaluating step* is the process of achieving to a judgment based on certain criteria; and *the creating step* refers to the process of creating a meaningful and functional new product (Anderson and Krathwohl, 2001).

In the knowledge dimension which is the vertical column of the RBT table, practitioners try to find an answer to the question "What should the learners be taught?" The knowledge dimension is comprised of factual, conceptual, procedural, and metacognitive knowledge levels (Krathwohl, 2002). *Factual knowledge level* refers to the key information that students have to know about on any given topic; *the conceptual knowledge level* means the knowledge that explains the relations between the concepts within a structure; *procedural knowledge level* refers to the information on how to do any operation or work; whereas *the meta cognitive knowledge level* represents the information regarding students' cognition (Anderson and Krathwohl, 2001).

**Table 1. Revised Bloom's Taxonomy Table**

| Cognitive Process<br>Dimension<br><br>Knowledge<br>Dimension | 1. Remember | 2. Understand | 3. Apply | 4. Analyze | 5. Evaluate | 6. Create |
|--|-------------|---------------|----------|------------|-------------|-----------|
| A. Factual<br>Knowledge                                      |             |               |          |            |             |           |
| B. Conceptual<br>Knowledge                                   |             |               |          |            |             |           |
| C. Procedural<br>Knowledge                                   |             |               |          |            |             |           |
| D. Meta Cognitive<br>Knowledge                               |             |               |          |            |             |           |

Upon examining the related literature, examinations held were found to be inadequate to measure students' high-level cognitive skills when assessed within the learning outcome-unit scope, and assessment questions were found to be usually asked at a low cognitive level (Arı and İnci, 2015; Atila and Özeken, 2015; Ayvaci and Türkdogan, 2010; Aydın and Güven, Cayhan and Akın, 2016; Çolak and Demircioğlu, 2010; Demir, 2011; Güleriyüz and Erdoğan, 2018; Gündüz, 2009; Güven and Aydın, 2017; Gökulu, 2015; Kala and Çakır, 2016; Karadeniz, Eker and Ulusoy, 2015; Kaşıkçı, Bolat, Değirmenci and Karamustafaoğlu, 2015; Koğar and Aygün, 2015; Köğce and Baki, 2009; Özden, Akgün, Çinici, Sezer, Yıldız and Taş, 2014; Şad and Şahiner, 2016). In addition, the studies carried out are mostly aimed at determining the level of the questions asked for an examination according to RBT. No analysis based on RBT of TEOG exam - Science and Technology course exam questions was found in the literature and most importantly, no studies have been found that show how the learning outcomes of Science and Technology course are related based on RBT. For this purpose, we tried to investigate three cases regarding the TEOG exam questions that started in 2013-2014 academic period and applied for three years:

1. Determining the levels of TEOG exam question in RBT,
2. Determining the levels of the 8th grade Science and Technology curriculum learning outcomes in RBT,
3. Determining the compatibility level of TEOG questions and Science and Technology course curriculum learning outcomes based on RBT.

There is no comprehensive study regarding the science and technology courses of the TEOG exam, which was put into practice in the 2013-2014 academic year. The RBT based assessment of the learning outcomes regarding the examination will reveal the current situation and shed light on what levels should be concentrated based on RBT on the exams which will be carried out in the following period. In this context, it is thought that this research will contribute to the literature.

## METHOD

In this study, the TEOG questions of the academic years 2013-2014, 2014-2015 and 2015-2016 Semester I and Semester II were analyzed based on RBT. In the study, the learning outcomes of the 8th grade science and technology curriculum (MONE, 2006) and TEOG questions were examined using document analysis method. The analysis of the documents included in the analytical researches is a process of encoding and examining the records and documents related to the designated research field containing the information about the cases or phenomena targeted to be investigated based on a certain system (Çepni, 2010; Yıldırım and Şimşek, 2011). Since RBT was used in the analysis of the data, the study was based on a descriptive analysis.

In the study, the following method was used which is suggested in the literature (Amer, 2006, Anderson, 2005, Bekdemir and Selim, 2008, Krathwohl 2002, Şahin, 2005, Zorluoglu, Kızılaslan and Sözbilir, 2016): (1) Firstly, the selected learning outcome sentence was examined and the step it belongs in the cognitive process dimension was determined based on the verb expression of the sentence. (2) In order to determine the suitable step of the learning outcome for the knowledge dimension, the noun expression of the outcome sentence is taken into account. (3) If there is more than one verb expression in an outcome sentence, the higher-level verb expression is taken into consideration while determining the cognitive process dimension of the learning outcome. For example, if an outcome involves actions that express both the understanding and the analyzing steps, then the analysis step, which is a higher level, is chosen. (4) In cases where there is more than one noun expression in an outcome sentence, one higher-level noun expression is taken into consideration to determine the knowledge dimension level. For example, if the learning outcome includes both factual knowledge and procedural knowledge, the level of procedural knowledge is determined as the knowledge dimension. (5) Finally, the intersection of the level in the information dimension and the level in the cognitive dimension on the table was marked and the level of the learning outcome based

on RBT was determined. Some examples of the learning outcomes and analysis of TEOG questions are presented below.

It is seen that there are two verb phrases which are "collects information" and "recognizes" upon examining the learning outcome sentence stated at the eighth grade level; "collects information about the concept of gene and recognizes dominant and recessive genes." The verb phrase of collecting information is the understanding level of the Cognitive Process dimension whereas the recognizing verb phrase is the analyzing step. In this case, it was decided that the outcome was more suitable for the analyzing step which is a higher level in the dimension. While the knowledge dimension of the learning outcome is determined simultaneously, since knowledge of the methods of gathering information regarding the gene context is required, it falls within procedural knowledge level, and also within conceptual knowledge level since it involves mutual relation knowledge between dominant and recessive genes. In this case, the table position of this outcome is determined as C4 and is shown in Table 2, taking into consideration the higher-level, which is the procedural knowledge level.

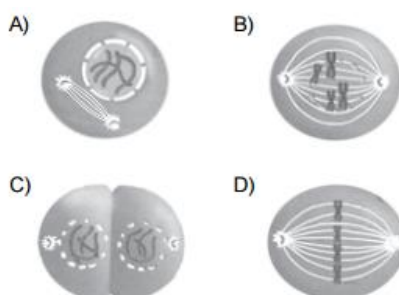
**Table 2: Place of the "Collects information about the concept of gene and recognizes dominant and recessive genes." outcome based on RBT**

| Cognitive Process Dimension \ Knowledge Dimension | 1. Remember | 2. Understand | 3. Apply | 4. Analyze | 5. Evaluate | 6. Create |
|---|-------------|---------------|----------|------------|-------------|-----------|
| A. Factual Knowledge                              |             |               |          |            |             |           |
| B. Conceptual Knowledge                           |             |               |          |            |             |           |
| C. Procedural Knowledge                           |             |               |          | X          |             |           |
| D. Meta Cognitive Knowledge                       |             |               |          |            |             |           |

**The following figure shows a phase of mitosis division in the animal cell:**



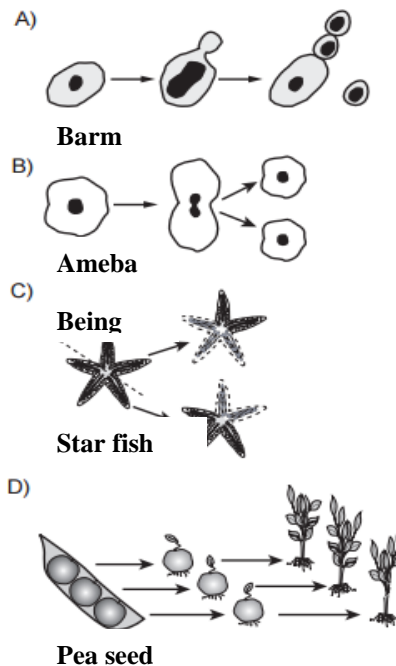
**What is the next phase coming after this phase?**



**Figure 1. Question from 2013-2014 Semester I**

The question in Figure 1 is within the Factual Knowledge of the knowledge dimension because it is thought that students should formally know the basic information about the mitotic division. Since the student can remember the information through the forms when he/she sees the question, it is decided that the problem is at A1 level because it is within the remembering level in the cognitive process dimension. However, in some questions, although the question includes a different dimension as a root, since it is necessary to answer the steps involved in the question in order to answer the question, the position of the problem in the RBT was determined considering the dimensions of such steps. For example, examining the root of the question in Figure 2, it is understood that question is asked in the Factual Knowledge - Remembering level. However, upon reviewing the question as a whole, it is determined that its place in RBT is B4 because the question is within conceptual knowledge in terms of knowledge dimension and within analyzing level in terms of cognitive process level, since it is required that the student has knowledge about the reproduction types, the change of the genetics depending on the breeding varieties, and he/she needs to make analysis regarding the question on reproduction types.

**Below are the reproduction patterns of various species.**  
**In which of these living species is the genetic structure of the obtained offspring**  
**different from the parent?**



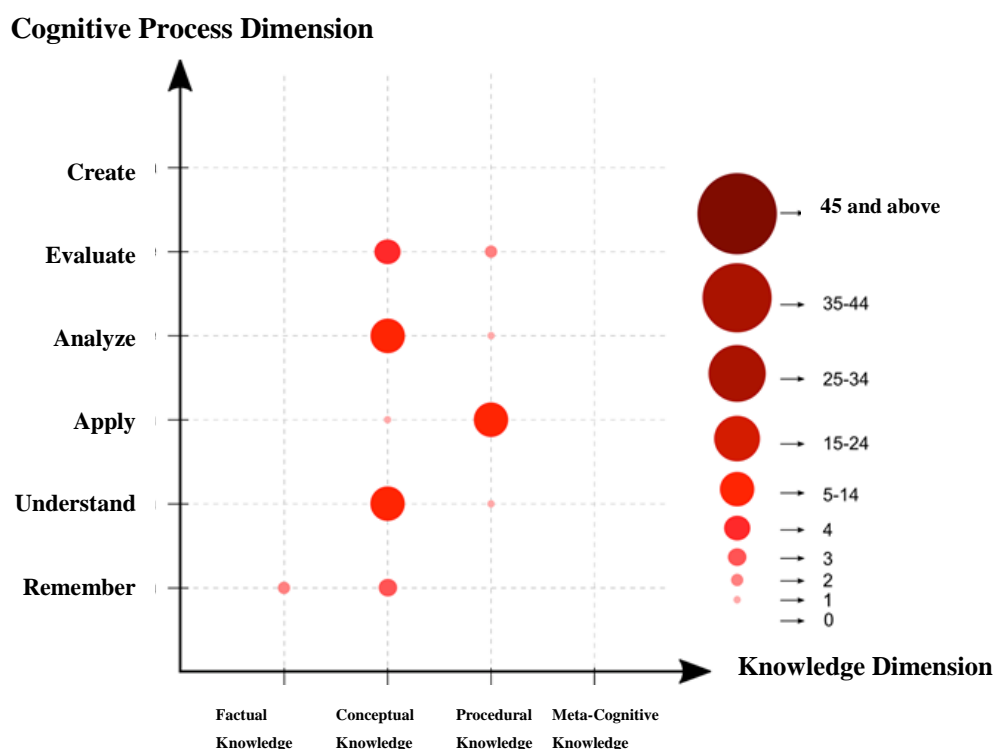
**Figure 2. Question from 2013-2014 Semester II**

The analysis of the data was carried out by one chemistry education expert and two science education experts. Analysis in the study: Three different situations were analyzed. *In the first analysis*, Since the TEOG questions are required to be related to the learning outcomes of the Science and Technology Curriculum (MONE, 2006), the analysis of the outcomes covering the TEOG Semester I and II was carried out by experts. To do this, specialists came together to analyze the 8th grade learning outcomes of the Science and Technology Curriculum based on the RBT. *In the second analysis*, TEOG questions were analyzed based on RBT. In order to reach a common judgment in the analysis of the TEOG questions, experts analyzed the questions of TEOG 2013-2014 Semester I and then the analyses of other semesters were analyzed by each expert separately. Then the analyses of the experts were compared with the re-gathering of the experts. Since the experts analyzed the TEOG questions separately based on RBT, the reliability co-efficient in the analysis of the questions was calculated as .79 using the  $\left[ \frac{\text{Agreement}}{\text{Agreement} + \text{Disagreement}} \right]$  formula. The analysis was considered to be reliable since the reliability coefficient of the TEOG questions based on the analysis

results was greater than .70. *In the third analysis*, it was tried to answer the questions of "which outcomes do not have any question addressed to them?" and "how is the relationship between the questions and the outcomes according to RBT?".

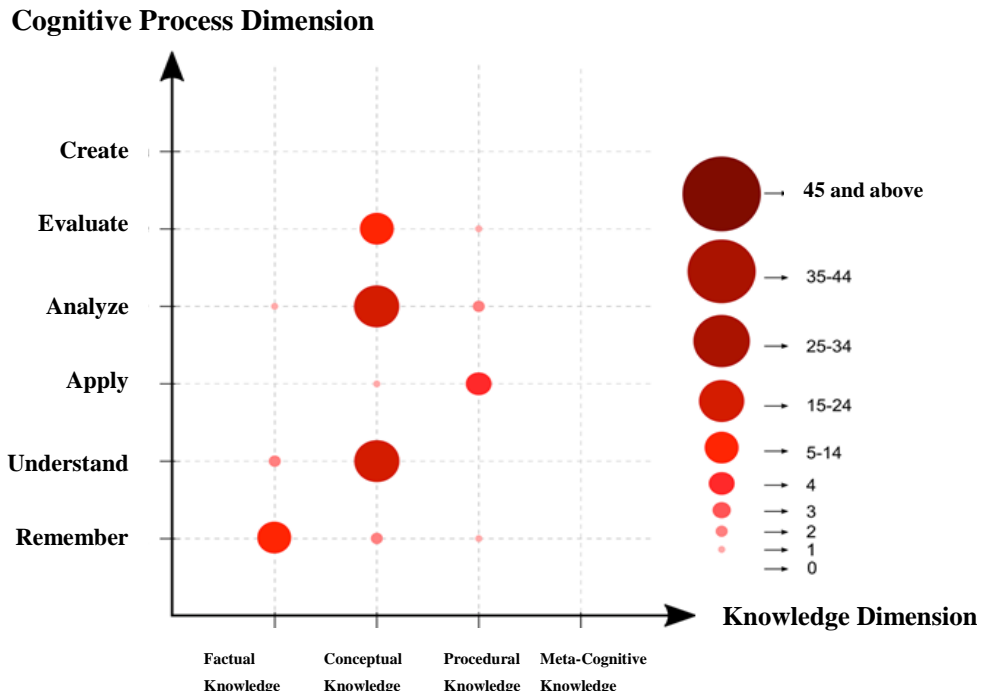
## FINDINGS

When TEOG questions and the related Science course outcomes are examined, it is seen that the questions and outcomes mostly take place in the cognitive process steps of the conceptual knowledge dimension.



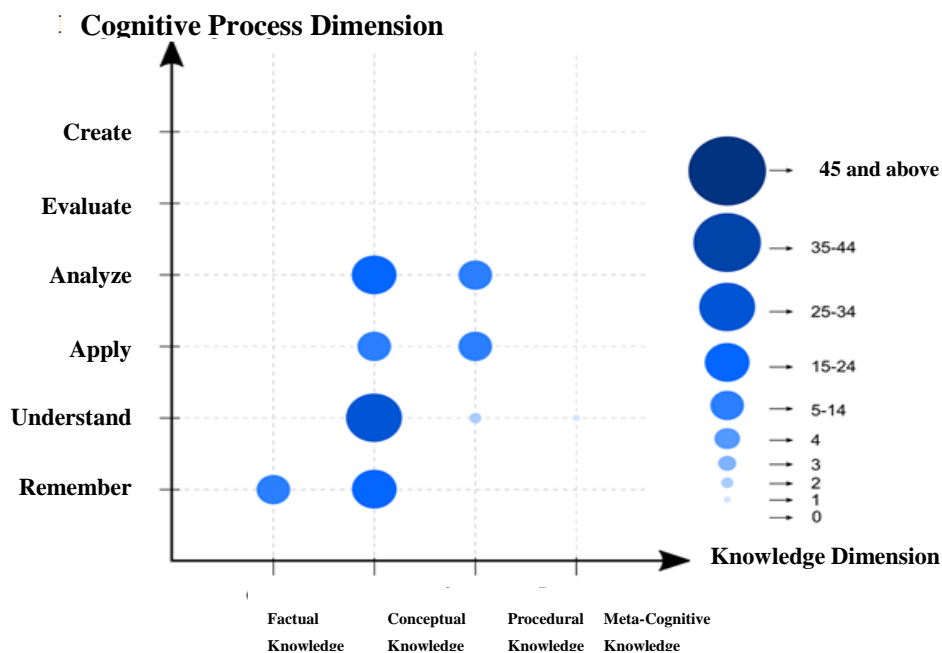
**Figure 3. Analysis of the Science and Technology Course Curriculum Outcomes within the scope of the TEOG Semester I Questions based on RBT**

In Figure 3, it is seen that, when the outcomes of the TEOG Semester I questions belonging to Science and Technology Course are examined, the learning outcomes are overlapped on the conceptual knowledge level of the knowledge dimension according to RBT and distributed heterogeneously to all steps of the cognitive process dimension except for the creating step. It was determined that the distribution of learning outcomes as per the curriculum was C5 as the highest level ( $n = 2$ ) and A1 as the lowest level ( $n = 2$ ). It was observed that the maximum number of outcomes was at C3 ( $n = 5$ ), B4 ( $n = 5$ ) and B2 ( $n = 6$ ) levels respectively; and the least number of outcomes were at C4, C2 and B3 levels ( $n = 1$ ). In addition to these, it seems that there were no outcomes directed at the metacognitive knowledge level of the knowledge dimension and the creating level of the cognitive process dimension.



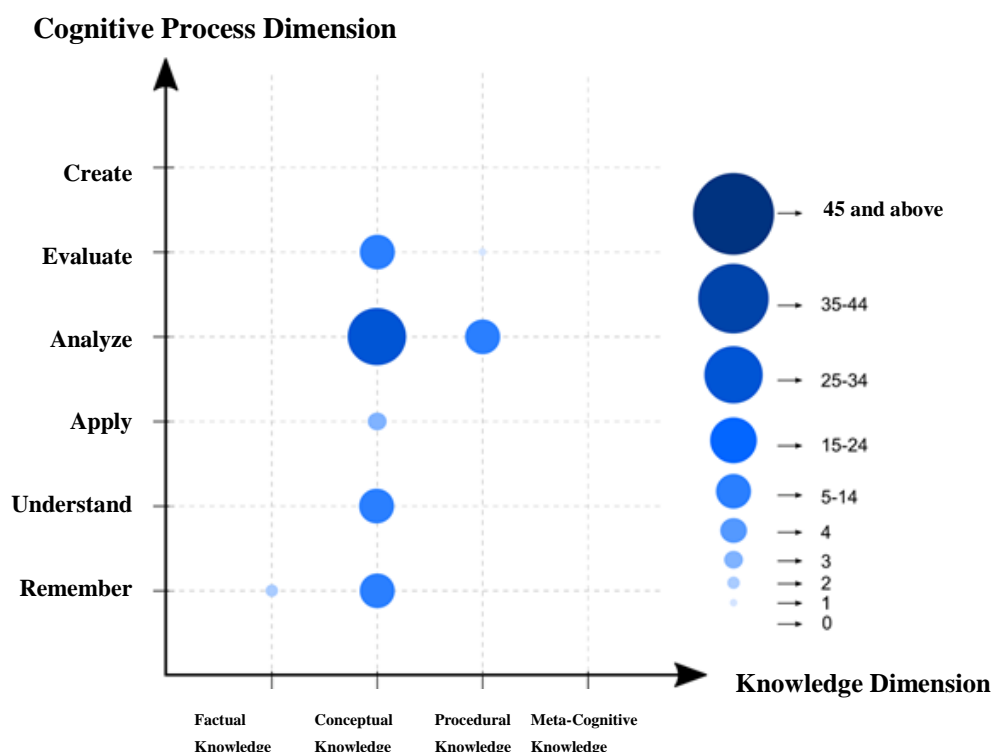
**Figure 4. Analyses of the TEOG questions of the academic years 2013-2014, 2014-2015 and 2015-2016 Semester I based on RBT**

When the TEOG Semester I questions were examined, it is seen as shown in the Figure 4 that the questions were asked mainly at B4 ( $n = 17$ ), B2 ( $n = 16$ ) and B5 ( $n = 5$ ) levels in the conceptual knowledge dimension; and the least amount of questions were asked at the C5, C1, B3 and A4 levels ( $n = 1$ ) respectively. Based on RBT, it was determined that the questions were asked at the C5 level ( $n = 1$ ) as the highest level and at the A1 level ( $n = 5$ ) as the lowest level in the TEOG questions of the 1st Semester. In line with the table shown at Figure 3, it is observed that there were no questions directed at the metacognitive knowledge level of the knowledge dimension and the creating level of the cognitive process dimension. (Figure 4)



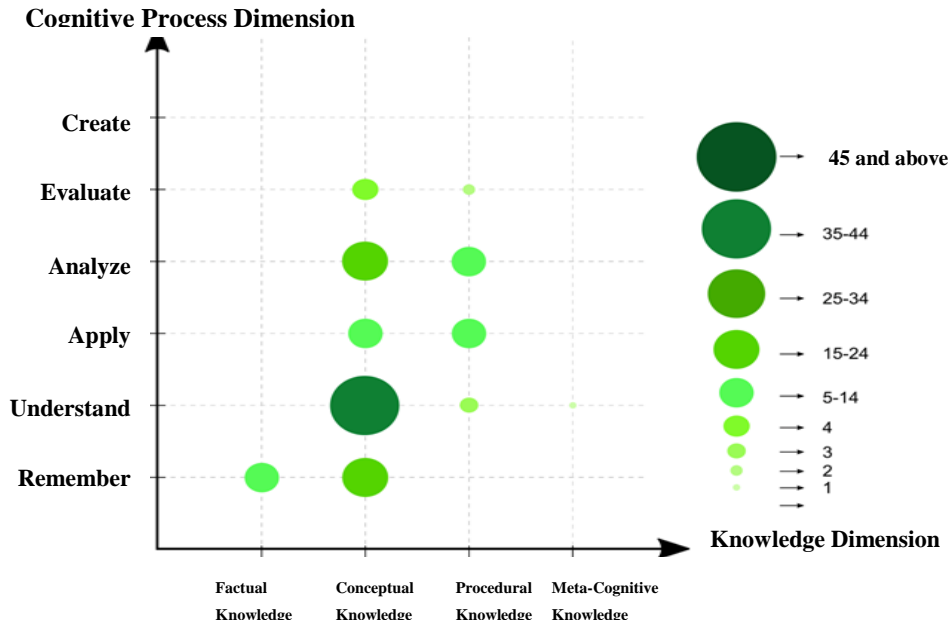
**Figure 5. Analysis of the Science and Technology Course Curriculum Outcomes within the scope of the TEOG Semester II Questions based on RBT**

When the outcomes of the Science and Technology course curriculum including the questions of the second semester of the TEOG exam are reviewed, it was determined that D2 was the highest level ( $n = 2$ ) and A1 was the lowest level ( $n = 8$ ) in terms of outcome distribution (Figure 5). It was observed that the maximum number of outcomes were at B2 ( $n = 34$ ), B4 ( $n = 17$ ) and B1 ( $n = 15$ ) levels respectively; and the least number of outcomes were at D2 ( $n = 1$ ), C2 ( $n = 2$ ) and C4 ( $n = 5$ ) levels. In addition to these, it seems that there were no outcomes directed at the metacognitive knowledge level of the knowledge dimension and the creating and evaluating level of the cognitive process dimension.



**Figure 6. Analyses of the TEOG questions of the academic years 2013-2014, 2014-2015 and 2015-2016 Semester II based on RBT**

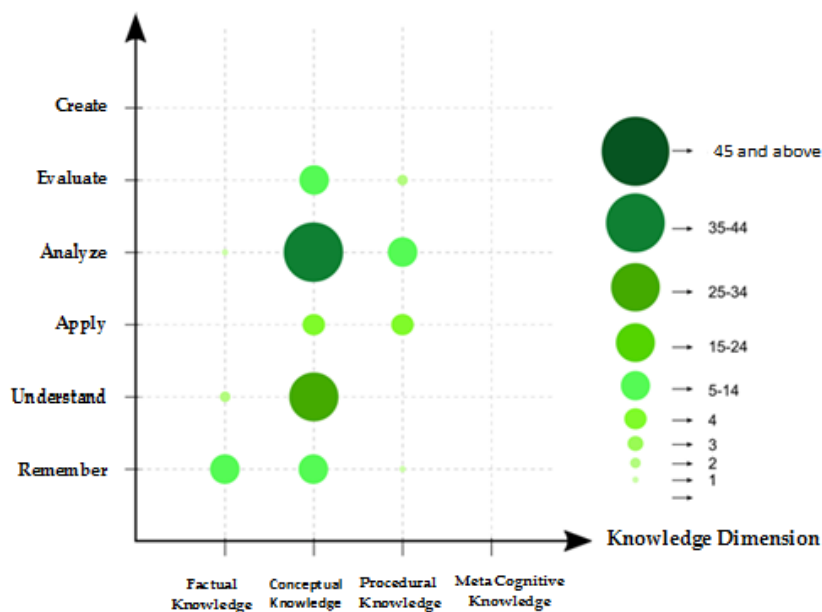
It was observed that Semester II questions of the TEOG exam were mainly towards Conceptual Knowledge dimension B4 ( $n = 25$ ), B2 ( $n = 13$ ) and B5 ( $n = 6$ ) as Semester I, and unlike Semester I, more questions were asked towards the B4 level. The least number of questions were asked at C5 ( $n = 1$ ), A1 ( $n = 1$ ) and B3 ( $n = 3$ ) levels respectively (Figure 6). It was determined as shown in Figure 6 that the questions were asked at the C5 level ( $n = 1$ ) as the highest level and at the A1 level ( $n = 2$ ) as the lowest level in the TEOG Semester II questions, same as the TEOG Semester I questions. It is seen that Figure 6 summarizing the situation regarding the TEOG Semester II questions and the Figure 5 examining the outcomes covering the questions from Semester II are in conformity. Unlike the outcomes, it was determined that questions were asked towards the evaluating step of the cognitive process dimension (B5,  $n = 6$ ).



**Figure 7. General Tendency of the Science and Technology Curriculum Outcomes within the scope of the TEOG Semester I and II Questions based on RBT**

When the Semester I and II questions of the 8th grade curriculum of the science and technology course within the scope of TEOG exam are assessed together; it was determined that 10 of the outcomes were at A1 level, 18 of them were B1, 43 of them were B2, 8 of them were B3, 22 of them were B4, 4 of them were B5, 3 of them were C2, 13 of them were C3, 6 of them were C4, 1 of them were C5, 1 of them were C6 and 1 of them were D2 (Figure 7). When the outcomes are classified according to their associated levels, it was found out that the most amount of outcomes were at B2 (n=43), B4 (n=22) and B1 (n=18) levels, and the least amount of outcomes were at D2 (n=1), C5 (n=2) and C2 (n=3) levels. Excluding 1 outcome at level D2, it can be said that there were no outcomes directed at the metacognitive level of the knowledge dimension and the creating level of the cognitive process dimension and the general tendency is as shown in Figure 3 and Figure 5.

#### Cognitive Process Dimension



**Figure 8. General Tendency of the TEOG Semester I and II Questions based on RBT**

In general, reviewing the questions asked in the TEOG exams held between 2013-2016 in details based on RBT: 11 questions were asked at A1 level, 6 in A2 level, 2 in A4 level, 12 in B1 level, 40 in B2 level, 2 in B3 level, 50 in B4 level, 13 in B5 level, 1 in C1 level, 9 in C3 level, 9 in C4 level and 3 in C5 level and there were 98 questions in total. The most amount of questions were asked at B4 ( $n = 50$ ), B2 ( $n = 40$ ) and B5 ( $n = 13$ ) levels and the least amount of questions were asked at C1 ( $n = 1$ ), A4 ( $n = 2$ ) and B3 ( $n = 2$ ) levels. Consistent with the learning outcomes indicating the 8th grade science and technology curriculum, it was determined that there were no questions regarding the metacognitive knowledge level of the knowledge dimension and the creating level of the cognitive knowledge dimension.

In addition, it was determined that 3 questions asked in the Semester I of 2014-2015 academic year were towards the outcomes of Semester II. Besides, it was determined that TEOG exam did not have any questions regarding 57 outcomes included in the curriculum.

## CONCLUSION AND DISCUSSION

It has been determined in the study that the TEOG questions are not homogeneously distributed to the learning outcomes and to the cognitive process and knowledge dimension levels of RBT. In this respect, the study has similarities with the views of Atila and Özekten (2015) and Kaşıkçı, Bolat, Değirmenci and Karamustafaoğlu (2015) who were indicating in their studies that TEOG questions were not homogeneously distributed to the curriculum outcomes.

It was determined that in the TEOG exams of 2013-2014, 2014-2015 and 2015-2016 academic years, there were no questions regarding 57 outcomes although they were included in the Science and Technology curriculum. TEOG questions need to address each learning outcome, in order to ensure that students' learning outcomes are assessed in the best way possible. In addition, the results obtained from the analysis of the TEOG questions by considering the cognitive process dimension of RBT, suggests that MONE (2006) is not sufficiently compliant with the goal of educating high-rank thinking students (Güven and Aydın, 2017). It has been determined from the studies in the literature that questions regarding certain outcomes included in the curricula are not being asked for the courses beyond Science and Technology course of the TEOG exam as well. Cayhan and Erhan (2016) examined the relationship between the 2014-2015 - Semester I TEOG questions regarding the Turkish course learning outcomes and it is stated that some of the outcomes were not addressed in the TEOG exam. In addition, Karadeniz, Eker and Ulusoy (2015) determined that 2013-2014 TEOG Semester I and II - Revolution History of Republic of Turkey and Kemalism course exam questions were not in line with the amount of the learning outcomes and also some of the units were not even had a related question in the exam. Arı and İnci (2015) examined the 2013-2014 TEOG Science and Technology - Semester I and II exam question and stated that the 68 out of 137 outcomes in the curriculum were related to the exam questions and that they were concentrated on the sub level cognitive steps and gave more weight to some of the learning outcomes. Koğar and Aygün (2015) investigated the compliance of the 2013-2014 TEOG mathematics questions with the objectives and determined that removing 4 of the questions of the Semester I and 1 of the questions of the Semester II will provide a better validity in terms of scope.

50% of the 2013-2014 TEOG Science and Technology Course exam questions were comprised of remembering and understanding levels (Gökulu, 2015). Similar results were obtained in the study as well. It was determined that there was a question for each level of the cognitive process dimension except for creating level, but the questions were mainly regarding the levels of remembering and understanding. In order for the education to be effective, the outcomes in curricula must be homogeneously distributed to the dimensions of the RBT. In situations where a homogeneous distribution can not be achieved, the teacher should provide the education at the RBT dimensions of the outcomes or higher. In the examinations held for the purpose of measurement and evaluation at the end of the education process, the evaluators should ask questions regarding each level of the RBT. However, when preparing the questions, the questions should be prepared considering the dimension of each outcome, and the questions directed to the higher-level knowledge and cognitive process

dimensions should be asked as well (Anderson and Krathwohl, 2001). Upon assessing the TEOG questions in general, it was determined that there were not enough questions regarding the dimensions of upper knowledge and metacognitive process skills, and when the relations between the learning outcomes and the questions were examined it was seen that the questions were prepared towards the sub dimensions of the outcome dimension. In this regard, this study shows similarities to the researches of Özden, Akgün, Çinici, Sezer, Yıldız and Taş (2014) and Kaşıkçı, Bolat, Değirmenci and Karamustafaoğlu (2015). Özden et al. (2014) stated that, in the 2013-2014 TEOG Science and Technology Semester I exam there were fewer questions measuring metacognition skills. Kaşıkçı et al. (2015) revealed that although the Science and Technology questions in the 2013-2014 Semester II TEOG exam was in line with the learning outcomes, the outcome-unit distribution was not homogenous.

## SUGGESTIONS

In the TEOG and similar examinations conducted with the aim of providing education in high schools where different cognitive levels are activated, it is required to include questions where each step of the RBT cognitive process skills can be activated and that address each learning outcome within the curriculum. It is thought that the quality of the student selection exams can be increased and the validity of the scope of the exams can be provided by this way. In addition, the preparation of the TEOG questions for each learning outcome in the curriculum will make the curriculum learning outcomes useful.

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## **The Impact of Biography-based Values Education on 4th Grade Elementary School Students' Attitudes towards Tolerance Value**

**Halil Taş<sup>i</sup>**  
Ministry of Education

**Muhammet Baki Minaz<sup>ii</sup>**  
Siirt University

### **Abstract**

This study seeks to determine the impact of biography-based values education on 4th grade elementary school students' attitudes towards tolerance value. Within the study, an experimental method with pre-test and post-test control group was used to find out the difference between attitudes towards tolerance value adopted by the students of the experimental group in which biography-based values education was practised and by the students of the control group in which it was not practised. In addition, in this study, which includes both quantitative and qualitative techniques, quantitative data were collected through tolerance attitude scale while qualitative data were collected through interview forms. All data collection tools were developed by researchers of the study. In this study, quantitative data were analysed through arithmetic average, frequency, independent samples t-test, Kruskal-Wallis H test and Mann-Whitney U test, while descriptive analysis approach was given preference in the analysis of qualitative data. In this study, researchers drew upon biographies of Prophet Muhammad, Atatürk, Fatih Sultan Mehmet, Hacı Bektaş Veli, Mevlâna and Yunus Emre. These biographies were presented with the tolerance value and in a manner and a format close to biographical fiction that brings in sub dimensions of the tolerance value including respect, toleration, harmony, flexibility, peace, equality, forgiveness, prejudice, modesty and understanding. In this study, it was determined that after the biography-based values education practice while there was a significant difference in favour of the experimental group between attitude points towards students' tolerance value, there was no significant difference between attitude points of students depending on variables of gender, education and income level of parents. It was concluded from interviews made with teachers, parents and students that the biography-based values education turned out to be a successful practice that concretized the teaching process, catalysed the learning of values, made the teaching environment enjoyable and positively affected students' attitudes towards tolerance values.

**Keywords:** Biography, Value, Values Education, Attitude, Tolerance

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<sup>i</sup> **Halil Taş**, Dr., Ministry of National Education, Inspection Board

**Correspondence:** egitimci1@hotmail.com

<sup>ii</sup> **Muhammet Baki Minaz**, Assist. Prof. Dr., Siirt University, Education Faculty,

## INTRODUCTION

Values are influential factors that shape human behaviours, and have crucial impacts on the development of human lifestyles (Yel & Aladağ, 2015). Values are choices that influence our lifestyle and decisions, determine our targets, represent our beliefs, and constitute our principles (Aktepe & Yel, 2009). Values, also defined as thoughts that shape our life, (Doğanay, 2012) are beliefs and thoughts that signify a stance and attitude of individuals towards any fact or event (Yeşil & Aydın, 2007).

Values education that should be involved in formal education, and contributes to individuals' character guidance and socialization (Gültekin, 2007) should not be considered as a simple part of the formal education (Dilmaç, 1999). Values should be taught in a planned way in formal education institutions in order to promote positive character traits of individuals (Genc & Eryaman, 2008; Çengelci, 2011). Values education, which involves helping individuals in value determination process (Naylor & Diem, 1987), is important in terms of bringing people in a common understanding of value (Sucu, 2012). As the process of growing and developing certain values of individuals gets underway in family and proceeds in school, the transfer of certain values to individuals particularly as of elementary school is among the most important tasks of education systems (Aladağ, 2009).

It is not possible to state that all thoughts, attitudes and behaviours adopted by people either as an individual or society are likely to be accepted by other individuals or societies. It is likely that tolerance has a significant influence in creating a social awareness grounded on toleration towards differences in which there is no space for prejudice, alienation and exclusion. Since one of the major features of the social life is to respect thoughts, feelings and behaviours of others defined as "the other" and accept them as is individually or in group, tolerance, as a factor that maintains the abovementioned, is becoming more of an issue in human life (Şahin, 2011). Tolerance is the state of not being uncomfortable with the existence of others related to different language, religion, race, belief and understanding (Akarsu, 2010; Öner, 1999). Tolerance can be defined as respect for beliefs, views and thoughts of others even if they are not parallel to one's own beliefs, views, thoughts and value judgements (Keleş, 1995). Tolerance signifies a certain dominance relationship in which the course and duration of the relationship is at the disposal of the tolerant by keeping the inequality among parties but not the togetherness with an acceptance of differences as equal and equivalent (Kuyurtar, 2000).

Having a significant influence impact on learning, attitude is a cognitive, affective and kinetic reaction to him/her or any social object or event around his/her circle based on his/her experience and knowledge (Baysal, 1981). Attitudes are continuous and steady beliefs, feelings and tendencies that cause us to always treat a certain person, object, event or organization in the same way (Güneş, 2015). Attitudes, which cannot be directly observed but learned with interpretation of behaviours, can be described as a part of acquired personality traits of the individual (Morgan, 2015).

While different views exist related to values education, there is an agreement that values should be handed down the next generations (Tozlu & Topsakal, 2007). Whereas scholars agree that values education should be continued within formal educational activities, there are different views on what should be transferred in values education as well as to whom and how it should be done (Harris, 1991). As it is not possible to mention about universal methods, techniques or processes to be applied in values education all over the world (Taylor, 1996), what is important here is not whether schools can transfer value or not but the issue of which values will be transferred through which method and technique (Lickona, 1996). One of the issues on which all pedagogues have consensus is the question of whether the methods and techniques applied have a determining effect on reaching achieving objectives set in education activities. This consensus emphasizes the importance of the method/s to be applied in the process of teaching value.

Defined as resume and memoirs (TDK, 2011), biography is a literary genre that examines individuals that are famous with their life and acts based on documents (Oğuzkan, 2001). Biography is

a literary genre which processes and narrates upbringings, experiences, social activities, feelings, thoughts and works of people who have had crucial roles in developments and changes in various fields of societies (Ağca, 1999). Biography, in terms of educational sciences, can be described as examination and regulation of historical issues for educational purposes by drawing upon people who have been famed and prominent in society with their thoughts and acts (Öncül, 2000).

Being applied in the process of giving individuals character education and teaching them values (Oğuzkan, 2001), biographies, when used in the right place at the right time, can be assessed as a teaching material that can have significant impacts on individuals, and a teaching aid that can contribute to development of skills of perceiving history, change and continuity (Er & Şahin, 2012). Due to their epitomizing features, children can often be influenced by biographies when determining their goals and future (Kıbrıs, 2000). Use of biographies as a teaching material could considerably help children acquire knowledge and skills in many fields as well as human values.

As children take famous people as a model during certain developmental periods, biographies can be regarded as an influential and significant literary genre during this identification process (Oğuzkan, 2001). Narrating children others' struggles for life, problems encountered and successes, biographies enable them to admire and respect their great jobs, commune with them and learn about applicable rules, values and customs and traditions of the society in which subjects of biographies reside (Kaymakcı & Er, 2015). Another feature that makes biographies important is that biographies transmit children things, important values and rules, facts and events in the past through concretisation (Gençtürk, 2005).

Reviewing the related literature, it is observed that there are not many experimental studies on use of biographies in teaching values in Turkey. Within literature, there are studies on how a biography-based values education will be designed (Çalışkan & Öntaş, 2018); how biographies should be used in social sciences (Öztürk, Sevgi & Otluoğlu, 2014); biography, types of biography, relationship between social sciences and the biography (Kaymakcı & Er, 2015); how, where and in what way the method of biography will be used (Er, 2009, Kaya, 2011; Şimşek, 2009); the impact of use of biography on students' academic success and attitudes towards the lesson during the social sciences lesson (Erdem, 2010; Gençtürk, 2005; Oruç & Erdem, 2010; Tekgöz, 2005; Top, 2009), and that these studies generally lay emphasis on basic knowledge about biography and theoretical issues related to the relationship of the biography with social sciences and history lesson. This shows that a current study is required to experimentally reveal the impact of the biography on values education in general, and specifically on teaching tolerance value.

As there is no experimental study observed in literature review that determines the impact of biography-based values education on 4<sup>th</sup> grade elementary school students' attitudes towards tolerance value and offers suggestions in this direction, it is thought that this study is likely to contribute to the field and fill a gap. This study is believed to be important as it guides to achieving the ideal human, citizen and society through a more effective and result-oriented values education, and that proves the effective use of biography in education in general and specifically in values education, particularly tolerance values.

The aim of this study is to determine the impact of biography-based values education on 4th grade elementary school students' attitudes towards tolerance value. Therefore, research questions are as follows:

1. Is there a significant difference between attitudes towards tolerance value adopted by students of the experimental group in which biography-based values education was practised and students of control group in which it was not practised, depending on experimental pre-test and post-test measurements?
2. Is there a significant difference based on the gender variable between attitudes towards tolerance value adopted by students of the experimental group in which biography-based values

education was practised and students of control group in which it was not practised, depending on experimental pre-test and post-test measurements?

3. Is there a significant difference based on the education level of parents between attitudes towards tolerance value adopted by students of the experimental group in which biography-based values education was practised and students of control group in which it was not practised, depending on experimental pre-test and post-test measurements?

4. Is there a significant difference based on the income level of parents between attitudes towards tolerance value adopted by students of the experimental group in which biography-based values education was practised and students of control group in which it was not practised, depending on experimental pre-test and post-test measurements?

5. What are the opinions of the classroom teacher related to the attitudes towards tolerance value adopted by the students in experimental group in which biography-based values education was practised?

6. What are the opinions of parents related to the attitudes towards tolerance value adopted by the students in experimental group in which biography-based values education was practised?

7. What are the opinions of students in experimental group related to biography-based values education practice?

## **METHOD**

### **Research Model**

In this study, pre-test-post-test control group test model was used to determine whether there is a significant difference between attitudes towards tolerance value adopted by students of the experimental group in which biography-based values education was practised and students of control group in which it was not practised.

Pre-test-post-test control group test model is a strong and complicated design that provides statistical support for the research and enables researchers to interpret findings based on the cause-effect relationship in order to reveal the impact of the experimental process on the dependent variable (Büyükoztürk, 2016).

In this study besides quantitative research techniques in which comparisons were made based on statistical data, data sources and data collection methods were diversified through application of qualitative research techniques to obtain further detail from the participants, draw upon experiences of the participants and understand their feelings, thoughts and ideas. According to Yıldırım and Şimşek (2016), diversification is the attempt to increase the cogency of results by using various data sources, data collection and data analysis methods.

### **Study Group**

As the major axis of the study is comprised of the tolerance value included in the 4<sup>th</sup> grade social sciences syllabus, the study group is composed of 4/C and 4/F classes at Durugöl Elementary School in Altınordu, Ordu. 4/C and 4/F classes were chosen as they had many aspects in common (number, gender, the level of education of parents, income level of parents, academic success levels, etc.).

Within the study, snowball sampling method, one of the purposeful sampling methods, was used in determination of parents to interview. With reference to Patton's (2014) questions "Who may

know this topic best? Who do you advise me to interview?” five interviewees from parents were determined through guidance of participants. To determine students to be interviewed, the criterion sampling, one of the methods of purposeful sampling, was applied. Defined as the study of all cases that meet the predetermined criteria (Yıldırım & Şimşek, 2016), criterion sampling is compose the sample of subjects, events, objects and cases that have properties determined related to the problem (Büyüköztürk, Akgün, Karadeniz, Demirel & Çakmak, 2018). Among the student selection criterion in the study was the selection of his/her parent for interview and thus, five students of five parents determined for interview were selected. To avoid any nonconformity against the work ethics, real names of the interviewees were not revealed and they were coded as *Teacher*, *Student 1*, *Student 2...*, *Parent 1*, *Parent 2...*

Size and gender of the participant students are shown in Table 1.

**Table 1. Frequency and Percentage Distributions of Students Depending on Number and Gender**

| Groups             | N  | Gender |       |      |       |
|--------------------|----|--------|-------|------|-------|
|                    |    | Female |       | Male |       |
|                    |    | f      | %     | f    | %     |
| Experimental Group | 27 | 14     | 51.85 | 13   | 48.14 |
| Control Group      | 28 | 15     | 53.57 | 13   | 46.42 |
| Total              | 55 | 29     | 52.72 | 26   | 47.27 |

Considering Table 1, it is observed that 14 of students in the experimental group are (%51.85) female while 13 of them are (%48.14) male; 15 of control group students are (%53.57) female whereas 13 of them (%46.42) male; and that therefore, students of both groups are equal in terms of both gender and general size.

### Research Process

Preparations, schedules and applications arranged during the research process are given below:

1. Experimental and control groups were created evenly in relation to attitude levels towards size, gender, income level of parents, education level of parents, academic success and tolerance.

2. *Tolerance Attitude Scale as well as Teacher, Student and Parent Interview Forms* were developed by the researchers of the study.

3. Biographies were prepared by the researchers related to biography-based values education. Biographies of Hz. Muhammad, Atatürk, Fatih Sultan Mehmet, Hacı Bektaş Veli, Mevlâna and Yunus Emre, and particularly sections in the biographies relating to the tolerance value were included in the study. These biographies were developed through the tolerance value and in a manner to teach such sub-values as respect, toleration, conformity, flexibility, peace, equality, grace, prejudice, modesty and understanding, as sub dimensions of the tolerance value. And for that purpose, biographies of the relevant people were not presented in a chronological simplicity but in interesting sections to teach the targeted objective. In respect of editing and presentation, biographies were prepared in a format close to that of biographical fiction. Biographical fictions are biographies that are produced through a literary narration decorated with author's own feelings and thoughts and interpretations besides information and documents (Kaymakcı & Er, 2015). These biographies, apart from slices of life of the main character,

include his/her psychological and physical properties, attitudes and behaviours, feelings, thoughts and reactions at full length (Çetin, 2010).

In Hz. Muhammad's life, the main focus has been particularly on the Siege of Ta'if, the pardon of mushriks following the Conquest of Mecca, Constitution of Medina, the event of slave Wahshi who martyred Hz. Hamza at the Battle of Uhud, the event of Bedouin who wanted to have the gabardine of the prophet and of the Bedouin who urinated in the Masjid and other hadiths and traditions of the prophet related to the tolerance value. In Atatürk's life, the principal focus has been particularly on his refusal to step on the Greek flag, his move of picking up the Greek flag after the August 30 Victory Day, his modesty during dinner given at Konya Governor's Mansion, experiences at the feast in honour of British King, his act of grace for the countryman who insulted him, his abolition of privileges for deputies during a train journey, his response to the question "Are you a dictator?" during a meeting and his statement "Peace at home, peace in the world" apart from his words and attitudes towards the tolerance value. There has been a focus on Fatih Sultan Mehmet's words and attitudes towards the tolerance value, including particularly his attitude towards Non-Muslim community and clergymen after the Conquest of Constantinople, Bosnia Edict and his testament for Galata Dhimmis. Hacı Bektaş Veli's life has been examined in relation to his words and attitudes towards the tolerance value with a particular reference to his words such as "In the language of friendly conversation, you can't discriminate between man and woman", "Everything God has created is in order", "Don't hurt anyone, even though you've been hurt" and etc. Mevlâna's masnavis and attitudes towards the tolerance value have been investigated thoroughly notably in terms of his dialogue with a priest at Konya Bazaar, the case of Muslim Judge Siraceddin with his student, his poem titled as "Come", his statement "In tolerance be like the sea" and his experiences with Şems-i Tebrizi. Finally, Yunus Emre's life has been analysed along with his word and attitudes towards the tolerance value with a particular reference to his statements such as "Love the created for the creator's sake", "Let us be lovers and loved ones, the earth shall be left to no one" and "Mystic is what they call me, hatred is my enemy".

1. Prior to the experimental process, *Tolerance Attitude Scale* was applied to the experimental and control groups as pre-test.
2. While the experimental group was subjected to the biography-based values education in line with the aims of the study, the control group was given values education within the framework of the current social sciences syllabus.
3. The experimental application was conducted for 14 weeks in which 42 lessons were given. 3 lessons were given each week, and each lesson lasted 40 minutes.
4. Tolerance Attitude Scale, previously applied to the experimental and control groups as pre-test, was re-applied as post-test following the completion of the study.
5. Students of the experimental group, their parents and class teachers were interviewed.

### **Data Collection**

Quantitative and qualitative research techniques were used to collect data. *Attitude Scale* was used as a quantitative data collection tool and *Interview Forms* as a qualitative data collection tool. All data collection tools were developed by researchers. Quantitative data were collected after reapplying the *Attitude Scale*, previously applied to the experimental and control groups as pre-test, following the completion of the experimental study.

During interviews, parents and teachers were given 7 and 6 questions respectively from the very beginning of the biography-based values education to the interview day to find out what changes were observed related to students' attitudes towards the *tolerance* value, and their reactions to the application conducted. Meanwhile, students were asked 6 questions related to their thoughts for

practices during lessons within the biography-based values education, whether the practice made a change in their attitudes towards tolerance values, their reactions to the practice, and their opinions on where and how the values education should be conducted. Interviews of about 20 minutes were carried out in a room provided by the school administration and recorded with the consent of participants.

### **Data Collection Tools**

#### **Tolerance Attitude Scale**

Attitude Scale was developed based on stages of creating attitude items, offering for expert opinion, pre-test, main practice, validity, factor analysis and reliability calculation (Karasar, 2017; Tezbaşaran, 2008). An item pool composed of 75 items in total, 37 of which were positive, and 38 of which were negative related to the *Tolerance* values, was created through review of literature and interviews with domain experts. As grading in likert type attitude scales was used 5 point. Phrases in the scale were graded as “I don’t agree at all”, “I don’t agree”, “I am not sure”, “I agree” and “I totally agree”. The main practice of the scale following the pre-test was conducted to 528 students in total, 257 of whom were female and 271 of whom male. It was found that the coefficient of skewness of the scale was -.564, coefficient of kurtosis 236, mean value 174.86 and median value 172.00. In the Kolmogorov-Smirnov test, K-S value was found as .06. Values obtained make it clear that points showed a normal distribution.

To determine the grade of each item within the scale in relation to discriminating individuals, as a result of the Pearson Product-Moment Correlation analysis made for that purpose, the relationship between all items and the total point was statistically found significant as  $p < .05$ . An item analysis based on the difference of lower-upper group means of the scale was conducted. It was found that  $t$  values that show item discrimination coefficients vary between -3.07 and 23.08, and that thus item-rest, item-total and item-discrimination indexes of all items within the scale were statistically significant at the level of .01. The scale value of Kaiser-Meyer-Olkin Test was found as .89, whereas the value of Bartlett test was found as .00. As a result of the exploratory factor analysis, it was determined that five factors were found with an eigenvalue bigger than 1, and that variance explanatory rates of these five factors that explain 88.46% of the total variance were 21.26%, %41.57, %58.91, 75.49% and 88.46%.

Five main factors obtained as a result of the conducted explanatory factor analysis were subjected to rotation axis, and as a result of a varimax rotation it was found that factor loading value of the scale varied between .81 and .43, and that five factors obtained created 6 items of “Understanding” sub dimension in the first factor, 7 items of “Respect” sub dimension in the second factor, 5 items of “Empathy” sub dimension in the third factor, “5 items of “Flexibility” sub dimension in the fourth sub dimension, and 6 items of “Prejudice” sub dimension in the fifth factor respectively. It was also found that the final scale was composed of 29 items with 14 of them positive and 15 of them negative.

As a result of the confirmatory factor analysis made, CFI (Comparative Fit Index) value was calculated as .93, NFI (Normed Fit Index) value as .88, GFI (Goodness of Fit Index) value as .91, AGFI (Adjusted Goodness of Fit Index) value as .90, RMR (Root Mean Square Residual) value as .02, RMSEA (Root Mean Square Error of Approximation) value as .05; moreover, all relationships between items and factors were found statistically significant at ( $p < .01$ ) level. It can be stated that as these calculated values/parameters are acceptable and verify the factor structure of the scale (Çokluk, Şekercioğlu & Büyüköztürk, 2016; Schermelleh-Engel & Moosbrugger, 2003), the model complies with data efficiently and these results verify the explanatory factor analysis of the scale and its five factor structure which is obtained.

To determine the reliability of the scale, Cronbach Alpha reliability coefficients of sub dimensions and entire of the scale were checked on. Accordingly, the reliability coefficient of the first factor (Understanding), second factor (Respect), third factor (Empathy), fourth factor (Flexibility),

fifth factor (Prejudice) was found as .88, .84, .79, .74 and .71 respectively. Cronbach Alpha reliability coefficient of the whole scale was calculated as .87. It is possible to state that the value calculated is a high value for the reliability of the scale (Büyüköztürk, 2016; Tavşancıl, 2014).

### **Interview Forms**

Researchers developed a teacher interview form to determine opinions of class teachers on attitudes of students of the control group where biography-based values education was practised; a parent interview form to determine opinions of parents; and a student interview form to determine opinions of the students on the practice. Interview forms were composed of semi-structured open-ended questions. Yıldırım and Şimşek (2016) put forward that semi-structured interviews are composed of certain questions, and that participants give answers to these questions however they want and clearly declare their personal opinions.

Interviews were projected based on dimensions including the preparation of the interview form, its testing, arrangement of the place and time of the interviews and realization of interviews (Yıldırım & Şimşek, 2016). The interview draft, created by taking opinions of 3 lecturers that are expert in the field, was tested on 3 parents, 3 teachers and 5 students that did not take part in the sample but had things in common, and problems encountered were resolved with addition, exclusion of and changes in some of the questions.

### **Analysis of Data**

#### **Analysis of Quantitative Data**

Arithmetic mean, frequency, independent group t-test, Kruskal-Wallis H test and Mann-Whitney U test were used in the analysis of quantitative data within the study. As this experimental study aimed an education for the same content with two different practices in two groups determined neutrally and evaluation of the effectiveness between two practices as a result of the study, the independent group t-test was used. Few subjects which do not meet the assumption of normality of points, Kruskal-Wallis H test was used for variables of education and income level of parents while Mann-Whitney U test was applied for the gender variable.

#### **Analysis of Qualitative Analysis**

Descriptive analysis approach was preferred to analyse qualitative data obtained through interviews in the study. In the descriptive analysis, data are interpreted through summarization depending on interview questions, and direct quotations are made from individuals (Yıldırım and Şimşek, 2016). The reliability of data in the study was carried out through participant conformation, corresponding expert analysis and inter-coder reliability processes (Boyatzis, 1998; Cresswell, 2013; Lincoln & Guba, 1985; Miles, Huberman & Saldana, 2018). The validity and reliability of the qualitative dimension of the study was tested in the light of cogency, transmissibility, consistency and approvability criteria (Yıldırım and Şimşek, 2016). As in this study it is aimed to transfer findings to readers after they have been controlled and interpreted, data obtained were first described systematically, logically, consistently and clearly with direct quotations where necessary, and then descriptions made were explained, interpreted, compared, examined regarding cause-effect relationship to reach a conclusion.

## FINDINGS

In this section, findings related to each sub problem are given respectively.

### Findings related to the first sub problem

Table 2 includes data related to whether there is a significant difference between attitudes towards the tolerance value adopted by experimental group students in which biography-based values education was practised and control group students in which it was not practised, depending on pre-test and post-test measurements.

**Table 2. Independent Group t-Test Results related to Pre-test-Post-test Attitude Points of Experimental and Control Group Students**

| Test      | Groups       | N  | $\bar{X}$ | S     | sd | t    | p   |
|-----------|--------------|----|-----------|-------|----|------|-----|
| Pre-test  | Experimental | 27 | 111.29    | 6.80  | 60 | .42  | .67 |
|           | Control      | 28 | 112.06    | 9.17  |    |      |     |
| Post-test | Experimental | 27 | 143.51    | 7.37  | 60 | 9.31 | .00 |
|           | Control      | 28 | 115.61    | 10.24 |    |      |     |

Considering Table 2, it is observed that there is not a statistically significant difference [ $t_{(60)} = .420, p > .05$ ] at the confidence level of .05 between pre-test points of the experimental group ( $\bar{X} = 111.29$ ) and pre-test points of the control group ( $\bar{X} = 112.06$ ), and that there is a statistically significant difference [ $t_{(60)} = 9.31, p < .05$ ] at the confidence level of .05 between post-test points of the experimental group ( $\bar{X} = 143.51$ ) and post-test points of the control group ( $\bar{X} = 115.61$ ) in favour of the experimental group.

### Findings related to the second sub problem

Table 3 includes data related to whether there is a significant difference depending on the gender variable between attitudes towards the tolerance value adopted by experimental group students in which biography-based values education was practised and control group students in which it was not practised, depending on pre-test and post-test measurements.

**Table 3. Mann-Whitney U Test Results related to Pretest-Posttest Attitude Points Depending on Genders of Students 1**

| Test      | Group        | Gender | N  | Mean Rank | Rank Sum | U       | p   |
|-----------|--------------|--------|----|-----------|----------|---------|-----|
| Pre-test  | Experimental | Female | 14 | 16.40     | 253.50   | 87.500  | .36 |
|           |              | Male   | 13 | 13.49     | 222.50   |         |     |
|           | Control      | Female | 15 | 15.53     | 238.50   | 109.500 | .70 |
|           |              | Male   | 13 | 14.31     | 235.50   |         |     |
| Post-test | Experimental | Female | 14 | 13.60     | 224.50   | 112.500 | .84 |
|           |              | Male   | 13 | 15.18     | 251.50   |         |     |
|           | Control      | Female | 15 | 16.23     | 251.50   | 101.500 | .41 |
|           |              | Male   | 13 | 13.65     | 228.50   |         |     |

Table 3 shows that there is not a statistically significant difference at the confidence level of .05 between female and male students in experimental group pre-test points [ $U = 87.50, p > .05$ ] and between female and male students in control group pre-test points [ $U = 109.500, p > .05$ ], and that there is not a statistically significant difference at the confidence level of .05 between female and male

students in experimental group post-test points [ $U=112.500$ ,  $p>.05$ ] and between female and male students in control group post-test points [ $U=101.50$ ,  $p>.05$ ].

### Findings related to the third sub problem

Table 4 includes data related to whether there is a significant difference depending on the variable of education level of parents between attitudes towards the tolerance value adopted by experimental group students in which biography-based values education was practised and control group students in which it was not practised, depending on pre-test and post-test measurements.

**Table 4. Kruskal Wallis H-Test Results related to Pretest-Posttest Attitude Points Depending on the Education Level of Students' Mother2**

| Test      | Group        | Education level of mother | N | Mean Rank | $\chi^2$ | sd | p   |
|-----------|--------------|---------------------------|---|-----------|----------|----|-----|
| Pre-test  | Experimental | Elementary                | 7 | 16.21     | 21       | 2  | .90 |
|           |              | Middle school             | 7 | 16.26     |          |    |     |
|           |              | High school               | 8 | 16.09     |          |    |     |
|           |              | University                | 5 | 14.22     |          |    |     |
|           | Control      | Elementary                | 8 | 12.56     | 4.52     | 2  | .09 |
|           |              | Middle school             | 9 | 11.42     |          |    |     |
|           |              | High school               | 7 | 18.10     |          |    |     |
|           |              | University                | 4 | 19.43     |          |    |     |
| Post-test | Experimental | Elementary                | 7 | 15.57     | 4,47     | 2  | .10 |
|           |              | Middle school             | 7 | 15.79     |          |    |     |
|           |              | High school               | 8 | 17.08     |          |    |     |
|           |              | University                | 5 | 13.26     |          |    |     |
|           | Control      | Elementary                | 8 | 16.21     | 21       | 2  | .90 |
|           |              | Middle school             | 9 | 15.90     |          |    |     |
|           |              | High school               | 7 | 14.25     |          |    |     |
|           |              | University                | 4 | 16.11     |          |    |     |

Table 4 highlights that there is not a statistically significant difference at the confidence level of .05 between mother education level and students' attitudes in experimental group pre-test points [ $(H(4)=.21$ ,  $p>.05$ ], and between mother education level and students' attitudes in the control group pre-test points [ $(H(4)=4.52$ ,  $p>.05$ ], and that there is not a statistically significant difference at the confidence level of .05 between mother education level and students' attitudes in the experimental group post-test points [ $(H(4)=4.47$ ,  $p>.05$ ], and between mother education level and students' attitudes in control group post-test points [ $(H(4)=.21$ ,  $p>.05$ ].

Kruskal-Wallis H test was applied to determine whether there is a significant relationship between pre-application and post-application attitudes towards the tolerance value adopted by experimental and control group students depending on the education level of the father, and results obtained have been given in Table 5.

**Table 5. Kruskal Wallis H-Test Results related to Pretest-Posttest Attitude Points Depending on the Education Level of Students' Father**

| Test      | Group        | Education level of father | N | Mean Rank | $\chi^2$ | sd | p   |
|-----------|--------------|---------------------------|---|-----------|----------|----|-----|
| Pre-test  | Experimental | Elementary                | 3 | 13.22     | 9.35     | 2  | .28 |
|           |              | Middle school             | 8 | 13.12     |          |    |     |
|           |              | High school               | 9 | 16.10     |          |    |     |
|           |              | University                | 7 | 15.85     |          |    |     |
|           | Control      | Elementary                | 4 | 12.40     | 4.10     | 2  | .08 |
|           |              | Middle school             | 9 | 11.35     |          |    |     |
|           |              | High school               | 9 | 16.51     |          |    |     |
|           |              | University                | 6 | 17.05     |          |    |     |
| Post-test | Experimental | Elementary                | 3 | 14.00     | 3.89     | 2  | .09 |
|           |              | Middle school             | 8 | 13.95     |          |    |     |
|           |              | High school               | 9 | 15.17     |          |    |     |
|           |              | University                | 7 | 13.09     |          |    |     |
|           | Control      | Elementary                | 4 | 15.01     | 3.12     | 2  | .30 |
|           |              | Middle school             | 9 | 16.54     |          |    |     |
|           |              | High school               | 9 | 11.23     |          |    |     |
|           |              | University                | 6 | 16.11     |          |    |     |

Table 5 demonstrates that there is not a statistically significant difference at the confidence level of .05 between father education level and students' attitudes in experimental group pre-test points [ $(H(4)=9.35, p>.05)$ ], and between father education level and students' attitudes in the control group pre-test points [ $(H(4)=4.10, p>.05)$ ], and that there is not a statistically significant difference at the confidence level of .05 between father education level and students' attitudes in the experimental group post-test points [ $(H(4)=3.89, p>.05)$ ], and between father education level and students' attitudes in control group post-test points [ $(H(4)=3.12, p>.05)$ ].

#### Findings related to the fourth sub problem

Table 6 includes data related to whether there is a significant difference depending on the variable of income level of parents between attitudes towards the tolerance value adopted by experimental group students in which biography-based values education was practised and control group students in which it was not practised, depending on pre-test and post-test measurements.

**Table 6. Kruskal Wallis H-Test Results related to Pretest-Posttest Attitude Points Depending on the Income Level of Students' Parents**

| Test      | Group        | Income level of parents | N | Mean Rank | $\chi^2$ | sd | p   |
|-----------|--------------|-------------------------|---|-----------|----------|----|-----|
| Pre-test  | Experimental | Less than 3000 TL       | 4 | 13.92     | .73      | 2  | .68 |
|           |              | 3001 TL-5000 TL         | 4 | 16.53     |          |    |     |
|           |              | More than 5000 TL       | 9 | 13.45     |          |    |     |
|           | Control      | Less than 3000 TL       | 5 | 11.77     | 1.62     | 2  | .44 |
|           |              | 3001 TL-5000 TL         | 5 | 15.38     |          |    |     |
|           |              | More than 5000 TL       | 8 | 16.52     |          |    |     |
| Post-test | Experimental | Less than 3000 TL       | 4 | 13.83     | .31      | 2  | .86 |
|           |              | 3001 TL-5000 TL         | 4 | 15.75     |          |    |     |
|           |              | More than 5000 TL       | 9 | 15.26     |          |    |     |
|           | Control      | Less than 3000 TL       | 5 | 17.50     | 1.20     | 2  | .53 |
|           |              | 3001 TL-5000 TL         | 5 | 13.95     |          |    |     |
|           |              | More than 5000 TL       | 8 | 14.90     |          |    |     |

Table 6 shows that there is not a statistically significant difference at the confidence level of .05 between parents income level and students' attitudes in experimental group pre-test points [ $H(3)=.73, p>.05$ ] and between parents income level and students' attitudes in the control group pre-test points [ $H(3)=1.62, p>.05$ ], and that there is not a statistically significant difference at the confidence level of .05 between parents income level and students' attitudes in the experimental group post-test points [ $H(3)=.31, p>.05$ ], and between parents income level and students' attitudes in control group post-test points [ $H(3)=1.20, p>.05$ ].

### **Findings related to the fifth sub problem**

After the application the class teacher of the experimental group students was asked seven questions related to what types of changes were observed in students' attitudes towards the tolerance value in class or school environment from the very beginning of the biography-based values education practice to the interview day, and his/her reaction to the practice. Some of the responses by the class teacher are shown below in brief:

***The class teacher of the experimental group:*** *Following the practice, I can say that I have observed generally positive changes related to the tolerance attitudes in students of my class. I also observed that some of the students who previously resolved problems by violence abandoned that behaviour and that instead of that, they treated each other more respectfully and sympathetically and attempted to understand one another. I witnessed that students who previously refused to sit with female students gave up that behaviour. I realized a decrease in ideas of some of my students who believed that foreign nationals were ill-minded following the practice, and that they started to act more warmly on foreign national students at our school. I find this practice a successful project in general and believe that it positively affected students. I also believe that this practice should often be applied in all lessons rather than in certain lessons, and that course books should be prepared in this direction. Finally, I am of the opinion that parents should be educated on values by means of these types of practices.*

In descriptive analysis of the data obtained from the interview with the class teacher, it was observed that the teacher had positive views and evaluations on the biography-based values education practice. According to views of the class teacher, it is likely to suggest that the practice positively influenced students' attitudes and turned out to be successful and efficient, and that following the practice students acted more tolerantly, respectfully and affectionately towards events and people. It is also possible to say that they overcame the prejudice and developed empathy. The class teacher also believes that the biography-based values education should be extended to all lessons and grades and that syllabi and course books should be prepared accordingly along with a values education for parents under the same or similar practices.

### **Findings related to the sixth sub problem**

Five students' parents in the experimental group were asked six questions to determine what changes they observed in their children in relation to the adoption of tolerance values at home or outside home and the realization of these values as behaviours from the beginning of the biography-based values education practice to the interview day. Some of the responses by parents are shown below in brief:

***Parent 1 (Mother of the Student 1):*** *I can say that the relevant practice left good impressions on my child. I also believe that thanks to the practice, there has been a decrease in negative thoughts of my child, and that my child has begun to share more. I can also say that my child has understood better that gender discrimination is something bad. I find the practice useful.*

***Parent 2 (Mother of the Student 2):*** *I can say that my child has become more tolerant and humanist after the practice. For example, I observed a decrease in his/her conflicts with*

*his/her sibling and more emphatic thoughts. I believe that values education will be more influential through such programs.*

**Parent 3 (Father of the Student 3):** *I can say that thanks to the practice, my child has learned better that people are different from each other, can make mistakes and thus s/he should not fly into temper. I think such practices should be made in all lessons and permanently.*

**Parent 4 (Father of the Student 4):** *I saw that following the practice, my child displayed more patient, more considerate and more polite attitudes and behaviours. S/he also has started to handle events and situations more flexibly and there has been a decrease in angry manners. I believe that the practice will be very useful if it is conducted in all classes and in regular basis.*

**Parent 5 (Father of the Student 5):** *My son used to resolve problems by force. After the practice was launched at school, I observed that my son came home more happily and cherished his friends. The practice should be extended to all schools and continued all year round.*

A descriptive analysis was applied to responses to the questions asked to parents of 5 students in the experimental group related to what types of changes they observed in their children in view of adoption of the tolerance value and displaying this value as an attitude and behaviour at or outside home from the very beginning of practice to the interview day, and results are juxtaposed as follows:

This practice

- Has made positive changes in attitudes of my child towards the tolerance value.
- Has increased the understanding and patience in my child.
- Has taught him/her that people may be different from each.
- Has showed him/her that emphatic thinking is a good way of resolving problems.
- Has showed my child that foreign nationals can be trusted.
- Has taught him/her that s/he should not discriminate between genders.
- Has made him/her get rid of prejudices.
- Has made my child more flexible against events and situations.
- Should be extended to all schools.
- Should be conducted in all lessons.
- Should be continued all year round.
- Should be applied to parents as well.

During interviews parents stated that the biography-based values education practice made positive changes in attitudes and behaviours of students, and that the practice has positive impacts on students related to the tolerance value. This result shows that this practice is a successful practice that positively influences students' attitudes. Accordingly, this result backs up quantitative data of the study.

### **Findings related to the seventh problem**

After the practice 5 students in the experimental group were asked six questions related to their views on lesson activities within the biography-based values education practice, whether the practice made any changes in their attitudes towards tolerance values, their reactions to the biography-based values education, and where and how the values education should be given. Some of the responses of experimental group students are given below:

***Student 1:** We were engaged in various activities thanks to the practice. We learned about the life of many people. Biographies we read during the lesson were very nice. Activities were enjoyable. I liked the practice.*

***Student 2:** I observed some changes in my attitudes during this lesson. I do not get angry at my friends' faults instantly. I am not on the outs with someone in the class. And I learned stories of many famous people during the practice.*

***Student 3:** It is nice to be tolerant. In fact, I have learned that our Prophet and Atatürk were tolerant people. I also liked Mevlâna and Mehmet the Conqueror a lot. Those we read about loved and respected people very much and did not mock anyone.*

***Student 4:** Thanks to the life stories we read during lessons, I understood how important it is to be tolerant. Wars shall not end, people shall worry and bad things will continually happen unless we behave tolerantly.*

***Student 5:** I believe values education should be carried out at school. For, schools are where teachers are and they are more knowledgeable. Besides, schools are equipped with more tools, libraries and laboratories.*

A descriptive analysis was applied to the responses of five students of the experimental group related to their views on lesson activities during the biography-based values education practice, whether there were any changes occurring as a result of the practice, their reactions to the practice and where and how the practice should be carried out. Results are given in brief as follows:

#### **Responses related to biographies**

- Biographies were enjoyable.
- Biographies were very good.
- Biographies were different.
- I learned much from biographies.

#### **Responses related to attitudes**

- I am more tolerant now.
- I am more patient now.
- I learned to respect people.
- I learned how important it is to be thoughtful.
- I learned to think differently.

### **Responses related to the practice**

- I like the practice a lot.
- The practice was very enjoyable.
- The practice was very good.
- We learned much information.

### **Responses related to the values education**

- Values education should be carried out at school.
- Values education should be carried out by teachers.
- Teachers are more knowledgeable.
- Facilities of the school (tools, equipment, environment, etc.) are better for the values education.

During interviews it was stated by students that they observed positive changes in attitudes and behaviours following the practice, and that they liked studies/activities and the practice, found it enjoyable and informative. Moreover, they stated that the values education should be carried out at school and by teachers. The result shows that the practice was successful and positively affected students' attitudes.

## **CONCLUSION, DISCUSSION AND RECOMMENDATIONS**

It was found in the study that there was a significant difference in attitudes towards the tolerance value adopted by students of experimental group in which the biography-based values education was practised, depending on pre-and-post-practice measurements. This result demonstrates the positive influence of the biography-based values education practice on attitudes towards the tolerance value of the students. Underpinned by the qualitative data obtained from interviews with parents, teachers and students, this result may point out that story-like aspects and interesting and curiosity-satisfying characteristics of biographies allow children to learn more easily and efficiently and have an impact on their attitudes.

These results, obtained after the practice related to the positive effect of the biography-based values education on attitudes of students towards the tolerance value, are backed by other studies. In the study conducted by Erdem (2010), it was determined that biographies are extremely effective in enhancing student success and developing favourable attitudes. Other studies have revealed that biographies, as literary genres, could be efficiently used in teaching knowledge, skills and values (Er, 2005; Erdem, 2010; Kaymakçı & Er, 2013; Öztürk & Otluoğlu, 2014; Aktepe & Oğuzkan, 2013). While Er (2010) states that biographies are teaching tools that are interesting and satisfy the curiosity, Kavcar (1999) and Mutluay (1977) put forward that literary works like biographies develop and consolidate human attitudes and values such as goodness, friendship, tolerance and act of grace. Other studies have shown that the use of literary works like biographies step up the process of teaching values and affect beliefs and attitudes of students as well as increase the level of developing affective behaviour characteristics, and that biography-based teaching practices are more effective than other practices (Akkuş, 2007; Akyol & Dikici, 2007; Çencen, 2010; Keskin, 2008; Öztürk & Otluoğlu, 2002; Öztürk, 2002; Pekkaya, 2007; Tekgöz, 2005; Top, 2009; Yüksel, 2006).

It was seen in the study that there was not a significant difference between post-test points related to the tolerance value of students in both experimental and control students after the experimental process, depending on variables of gender, parents' education and income level. This result shows that there was not any impact of variables of gender, parents' education and income level on students' attitudes towards the tolerance value. It can be pointed out that the non-discrimination of the rich-and-poor in biographies selected did not influence this result. Moreover, it is likely that the absence of a positive or negative discrimination related to the gender in relevant biographies decreased the impact rate of genders in evaluating students. The reason why education levels of parents did not affect students' attitudes towards the tolerance value may have been the fact that parents did not reflect pros and cons resulted from education levels to their children. The inefficiency of the gender, education as well as income level of parents on students' attitudes towards the tolerance value may have been due to the fact that students did not consider these variables as potential causes for differences in attitudes and behaviours because of their ages (9-10) and as a justification for differences, and that children of these ages had more egalitarian views.

Er and Şahin (2012) have shown that there is not a significant relationship between the use of biography to change attitudes and socio-economic levels and genders of students. In their study Öztürk and Otluoğlu (2002) have suggested that there is not a significant relationship between the use of literary works like biography in teaching social sciences and students' learning levels of cognitive-behavioural characteristics, depending on the gender variable. While in the study conducted by Er (2010) shows that there is not a significant difference between biography selections and gender and socio-economic level variables, the study by Çencen (2010) demonstrates that there is not a significant relationship between the use of literary works like biography and the gender variable in relation to attitude change. It has also been determined in other studies that there is not a significant relationship between student attitudes and gender, education and income levels of parents in values education (Akbaş, 2004; Aktepe, 2010; Aladağ, 2009; Baydar, 2009; İşcan & Senemoğlu, 2009; Keskinoglu, 2008; Özensel, 2007; Taş, 2016; Yiğittir 2009). In the study conducted by Gibson and Schwartz (1998) it was determined that the variable of gender was not influential and important in the order of importance of values.

It was concluded from the interview with class teachers that the biography-based values education was successful and positively affected students' attitudes towards the tolerance value and enabled students to exhibit prejudice-free, more tolerant, more patient, more flexible, more emphatic and more polite behaviours. These results are backed by different studies. In other studies teachers have stated that they observed positive behaviour changes in students and that the values education had positive impacts on students' attitudes (Aladağ, 2009; Moore, 2005; Taş, 2016; Thompson, 2002; Yalar, 2010; Yiğittir, 2009). It was determined from interviews with teachers that the use of biographies as literary works in lessons positively influence students' beliefs and attitudes and that the biography is an interesting, curiosity-satisfying and informative literary genre (Çencen, 2010; Er, 2005; Er, 2010).

It was concluded from interviews with parents that after the practice there was a positive change in students' attitudes towards the tolerance value and that the practice was a successful one that positively influenced students' attitudes towards the tolerance value. These results are backed by studies in which parents were interviewed. In these studies it was concluded that as a result of interviews with parents the values education practice had positive impacts on students' attitudes towards values (Aladağ, 2009; Karma & Kahil, 2005; Moore, 2005; Taş, 2016; Thompson, 2002).

As a result of interviews with experimental group students, it was concluded that the biography-based values education practice brought about positive changes in students' attitudes and behaviours towards the tolerance value, that students found it enjoyable and informative, and that the successful and positively influential practice should be carried out at schools by teachers. These results are backed by studies including interviews with students. In these studies it was determined that during interviews, students stated that the values education practice positively affected their attitudes (Aktepe, 2010; Aladağ, 2009; İşcan & Senemoğlu, 2009; Perry & Wilkenfeld, 2006; Taş, 2016; Thompson,

2002; Uzunkol, 2014) and that by means of written literary works they felt much better in issues such as liking, cognisance, appealing, desire for something, adding something for his/her personality and establishing a bond with what is learned (Öztürk & Otluoğlu, 2014). It was concluded from interviews with students in other studies that biography-based education practices enabled students to learn topics and values better and enjoy learning more and that biographies are important literary works that are interesting, curiosity-satisfying and instructive (Akkuş, 2007; Er, 2005; Er, 2010; Tekgöz, 2005; Top, 2009).

As the biography-based values education is influential in teaching values and attitudes towards values, it can be applied in different lessons and grades. This practice can be effectively applied in teaching values of justice, giving importance to the unity of family, independence, peace, being scientific, industriousness, solidarity, sensitiveness, honesty, aesthetics, equality, freedom, respect, love, responsibility, saving, patriotism and charity as part of the syllabus of social sciences at elementary school along with the tolerance value. Where necessary arrangements are made in terms of language and expression, biographies can be curiosity-satisfying, intriguing and instructive in teaching values. The story-like feature of biographies along with its curiosity-satisfying and intriguing feature can help students learn easier, more effectively and more permanently. Presentation of expedience biographies with various artistic activities such as drama and theatre as well as visual and auditory technology may have more positive and faster impact on students' attitudes towards values.

To carry out the values education more effectively, it is more suitable to have an independent values education course rather than to teach them as part of other courses. Biographies regulated in terms of language and expression may be included more in syllabi and course books. A data repository can be formed by classifying biographies depending on its intended use and students' progress and making them available for teachers, students and parents. Instead of a teacher-centred values education, a biography-based values education practice or similar practices grounded on this practice may be used more actively within the learning process of students. Biographies may be effectively applied in transferring difficult, complicated and abstract topics and concepts more permanently by through concretization of them. To consolidate values taught at school through support of families and circle, families may have formal education related to values. As teachers are crucial models for teaching values, they may be trained better in values education during pre-and-in-service trainings.

This study has been confined the tolerance value. Researchers may study on the impact of the biography-based values education on 4<sup>th</sup> grade elementary school students' attitudes towards values of justice, giving importance to the unity of family, independence, peace, being scientific, industriousness, solidarity, sensitiveness, honesty, aesthetics, equality, freedom, respect, love, responsibility, saving, patriotism and charity.

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## **Professional Knowledge Courses in Teacher Education: Lecturer and Student Views (The Case of Gazi Education Faculty)**

**Gülgün Bangir-Alpan<sup>i</sup>**  
Gazi University

**Gürcü Koç -Erdamar<sup>ii</sup>**  
Gazi University

### **Abstract**

Professional knowledge courses (PKC) at education faculties are designed to educate high quality teachers. This study aims to examine the views of education faculty lecturers, graduates and senior year students about the place and implementation of PKC in teacher education. The study group of the qualitative study included lecturers (20), senior year (22) and graduate (12) students who agreed to take part in the study. Data were collected by using semi structured interview forms. Focus group interviews of 30-45 minutes were held with individual lecturers and graduates, and with groups of 3-5 senior year students. For data analysis, a list of codes was made. Relevant codes were brought together for thematic coding. Analyses of lecturer and student views on PKC revealed the following themes: General perceptions, content, implementation, quality of lecturers, measurement and evaluation in PKC, teaching practice, educational environments, educational system - policies, and recommendations. The study concludes with teacher education recommendations based on the findings.

**Keywords:** Teacher education, professional knowledge for teachers, lecturer views, teacher candidate views

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<sup>i</sup> **Gülgün Bangir - Alpan**, Assoc. Prof. Dr., Gazi University, Department of Educational Sciences

**Correspondence:** bangir@gazi.edu.tr

<sup>ii</sup> **Gürcü Koç - Erdamar**, Assoc. Prof. Dr., Gazi University, Department of Educational Sciences

## INTRODUCTION

According to teacher education research, the characteristics needed by high-quality teachers are as follows: The primary characteristics include coming to class prepared, having a positive worldview, being creative and innovative. Secondary characteristics are being fair, humorous and compassionate (Çelikten, Şanal and Yeni, 2005; Okçabol, 2004; Walker 2008). According to a different view, teachers are considered to be competent and effective in their fields if they can transform conceptual knowledge into appropriate action (McGinn and Schiefelbein 2010; Riedler & Eryaman, 2016). In other words, an effective teacher can guide students to turn abstract knowledge into concrete and to conceptualize new information by integrating it into their lives. Whenever teacher qualities are discussed, issues such as teacher education policies, models, strategies, programs and restructuring inevitably come up. Yıldırım (2011) mentions several conflict areas at play during teacher education. These are conflicts between subject area and professional knowledge of teaching, theory and practice, standardization and diversity, and the teacher as technician and expert. Yıldırım (2011) states that most studies seem to ignore these conflict areas. He attributes this to the narrow scope of recent teacher education studies.

This study aims to examine Professional Knowledge Courses (PKC) at education faculties. It discusses the role of PKC in teacher education by drawing on teacher and student views. Therefore, it relates directly to the conflict between subject area and professional knowledge of teaching. It is hoped that the study will contribute to broadening the scope of teacher education research.

### **Professional knowledge courses (PKC)**

In 1982, a major change took place in the Turkish teacher education system with the Higher Education Reform through which all teacher education institutions under the Ministry of Education were transferred to the university system (Saban, 2003; Simsek and Yildirim, 2001; Tercanlioglu, 2004). With this higher education reform, all 3- and 4-year Teacher Education Institutes at university level for middle schools (lower secondary) and high schools (upper secondary) were transformed into 4-year departments in Faculties of Education (Simsek and Yildirim, 2001). The Higher Education Council (HEC) resolved in 1982 that Departments of Educational Sciences would be established to offer PKC (HEC, 2007a). In 1983, educational programs were developed for education faculties. These programs reconsidered PKC, as well. The programs stayed effective with minor changes until the end of the 1997-1998 academic year (ÖzTurk, 2005; HEC, 2007a). During the 1990s, teaching practice component became dysfunctional as education faculties were acting like faculties of science and letters; there was an imbalance between PKC and other courses in the program; and PKC were being neglected (Baskan, 2001; Özer, 1990; ÖzTurk, 2005; Yüksel, 2011). The HEC carried out two comprehensive studies in teacher education programs, the first of which took place in 1997 and the second in 2006 (as an update to the first one) (HEC, 2007a; HEC, 2007b). Standardizing PKC was a major goal of these studies. The criticism following the 1997 and 2006 efforts and voiced in several research results was about PKC (Çelik and Önal, 2005; Kumral and Saracaloğlu, 2011; Taşkın and Hacıömeroğlu, 2010; Üstüner, 2004; Yüksel, 2004). The criticism revolved around the need for programs offered at education faculties, particularly PKC, to be redesigned. Currently, the following PKC are offered at education faculties: Introduction to Educational Sciences, Educational Psychology, Instructional Principles and Methods, Instructional Technologies and Materials Design, Classroom Management, Special Instruction Methods, Measurement and Evaluation, Counselling, School Experience, Practice Teaching, Turkish Educational System and School Administration, Comparative Education, Program Development and Instruction, Developmental Psychology, Instructional Theories and Approaches, Sociology of Education, Philosophy of Education, and Turkish Educational History. The role and proportion of PKC in teacher education programs was loosened by the 2006 resolutions of the HEC, and left to the decision of faculty boards depending on each department's needs and conditions (HEC, 2007b).

PKC were designed in order to train high-quality teachers. There are numerous studies and debates on the role, effects and significance of PKC in teacher education. These studies have mostly considered individual PKC and focused mainly on the following courses: Practice Teaching (Cansaran, İdil and Kalkan, 2006; Çetintaş and Genç, 2005; Eraslan, 2009; Kılıç, 2004; Özkılıç, Bilgin and Kartal, 2008), School Experience I and II (Demircan, 2007; Kılınç and Altuk, 2010; Sarıtaş, 2007). They mostly investigated course implementation, effects on students, and overall problems. Studies on the Measurement and Evaluation and Instructional Planning and Evaluation courses (Anıl and Acar 2008; Birgin and Gürbüz, 2008; Çakan, 2004; Çelikkaya, Karakuş, & Demirbaş, 2010; Gelbal and Kelecioğlu, 2007; Şahin 2007) have usually questioned the competence of teachers and teacher candidates in measurement and evaluation. Other examples of course-based studies include the effects of the Instructional Technologies and Materials Design (Gündüz and Odabaşı, 2004; Güven, 2006) and Instructional Principles and Methods (ÖzTurk, 2004; Soylu, 2009) courses on teacher candidates. Studies that have evaluated PKC in general (Ekici, 2008; Taşkın and Hacıömeroğlu, 2010) have revealed the viewpoints and attitudes of teacher candidates towards the courses. It is worth noting that most of these studies focused solely on teacher candidates. The present study, however, also examines the viewpoints of lectures. High-quality teacher education has always been part of social development decisions (Çağlar and Acar, 2013; ERG, 2015; YPK, 2013). The present study offers a discussion of PKC, which is a critical variable in the process of high-quality teacher education, based on the views of education faculty lecturers and teacher candidates.

## METHOD

### Participants

This qualitative study aims to examine the views of education faculty lecturers, graduates and senior year students about the place and implementation of PKC in teacher education. The study group comprises lecturers teaching PKC at Gazi University's Gazi Education Faculty (20), senior students (22) and students who have graduated (12), all of whom agreed to take part in the study. A total of 54 interviews were conducted. Of the students, 26 were female and 9 were male. Their ages varied between 21 and 34. Of the lecturers, 10 were female and 7 were male. Five were full professors, 9 were associate professors and 3 were assistant professors. They had 15 to 43 years of professional experience. An effort was made to include lecturers and students from all departments and divisions of Gazi Education Faculty in the study group. The distribution of senior year students and graduates according to their specializations was as follows: Elementary Education 7, Art and Crafts Education 6, Mathematics Education 4, Preschool Education 3, Music Education 3, Turkish Language and Literature Education 2, Science Education 2, Geography Education 2, German Education 2, English Education 1, Physics Education 1, Social Studies Education 1. The distribution of lecturers according to their divisions was as follows: Curriculum and Instruction 5, Preschool Education 2, Music Education 2, Geography Education 2, Educational Administration, Supervision and Planning 1, Physics Education 1, Measurement and Evaluation 1, English Education 1, History Education 1, Elementary Education 1. The study group was established by using the purposive sampling method of criterion sampling. The criteria used in choosing the interview participants were as follows: 1. Lecturers should have at least 15 years of professional experience, 2. Lecturers from outside the Educational Sciences Department should have the experience of teaching the «Special Instruction Methods» and «Practice Teaching» courses, 3. Students and graduates should have attended PKC and also «Practice Teaching», and 4. Participants should agree to take part in the study.

### Procedure

A semi-structured interview form was used to help obtain more in-depth data from participants' own perspectives (Furlong and Edwards, 1993; Yıldırım and Şimşek 2006). The interviews were held between March-June 2015. Approximately 30-45 minute focus group interviews were held individually with lecturers and graduates, and with groups of 3-5 senior year students. Written notes were held during the interviews and audio recordings were made where interviewees

agreed to it. Interview forms were designed by surveying the literature and deciding on core and follow-up questions. These questions were then sent for expert view and necessary adjustments were made in line with the feedback. Following these, interviews were held with 2 lecturers and 2 students to test the intelligibility of the questions and their adequacy in data collection. In the final interview form, the following questions appeared: 1. Which PKC have you taught/taken? 2. Do PKC meet their aims in teacher education? 3. What are your views about the content of PKC? 4. What are your views about PKC's implementation and process? 5. What are your views about the qualities of lecturers who teach PKC? 6. What are student attitudes and participation like in PKC? 7. What are your views about the measurement and evaluation used in PKC? 8. What do you think PKC should be like? How should courses be planned, taught and evaluated?

### Data analysis

In data analysis, notes from interviews with lecturers and students were examined line by line and a list of codes was drawn up after coding the data. Related codes in the list were brought together for thematic coding. Thematic coding took into account internal and external consistency with research questions. Later, participants views were grouped by considering the list of codes and themes. Themes and codes organized according to frequency of similar opinions were tabulated and sample quotations were included in interpretations. Instead of using real names, coding was done by using L1 and so on for lecturers and S1 and so on for students. For reliability, responses of lecturers and students to the interview questions were coded separately by two different researchers. The codes determined were examined by the researchers and codes with "agreement" and "disagreement" were spotted. In reliability measurements for the coding, Miles and Huberman's (1994) reliability formula was used.  $\text{Reliability} = \text{Agreement} / (\text{Agreement} + \text{Disagreement})$ . The calculations revealed a reliability rate of 87% and the research was considered reliable.

## FINDINGS

In this section, interpretations about PKC are tabulated and sample quotations are included. Lecturer and student comments about professional knowledge courses are gathered under the following themes: General perceptions, content, implementation, quality of lecturers, measurement and evaluation in PKC, practice teaching, educational environments, educational system and policies, and recommendations.

Table 1 presents the list of themes and codes related to lecturer and student comments about PKC and the frequency of opinions.

**Table 1. Lecturer and student comments on PKC**

| Themes              | Codes                                  | L(n=20) | S(n=34) |
|---------------------|--|---------|---------|
| General Perceptions | necessary and important                | 16      | 23      |
|                     | failing to meet goals                  | 17      | 15      |
|                     | boring courses                         | 13      | 14      |
|                     | enjoyable courses                      | -       | 5       |
|                     | affect of lecturers                    | -       | 17      |
|                     | theory-practice discord                | -       | 17      |
| Content             | density of cognitive behavior          | 5       | -       |
|                     | micro teaching as a separate course    | 5       | 10      |
|                     | overlapping                            | 6       | 7       |
|                     | reduction and deepening                | 3       | 5       |
|                     | increasing the time in certain courses | -       | 7       |
|                     | drama as a separate course             | -       | 10      |

|                             |  |    |    |
|-----------------------------|--|----|----|
| Implementation              | insensitivity to student needs                       | 6  | -  |
|                             | presentations by students                            | 5  | 7  |
|                             | lack of practical work                               | 8  | 23 |
|                             | mechanical and based on memorizing                   | 3  | 13 |
|                             | inefficient  | -  | 10 |
|                             | lecturing method and mostly slides                   | 4  | 11 |
|                             | students not participating actively                  | -  | 11 |
| Lecturers                   | too much teaching load                               | 4  | -  |
|                             | academic studies, promotion                          | 5  | -  |
|                             | being equipped                                       | 10 | 13 |
|                             | modeling   | 9  | 7  |
|                             | communicating effectively                            | 7  | -  |
|                             | poor teaching performance                            | 13 | -  |
|                             | experience of elementary-middle-high school teaching | 5  | 3  |
| Measurement and evaluation  | mostly cognitive measurement                         | 9  | -  |
|                             | encouraging memorization                             | 9  | 8  |
|                             | not including alternative approaches                 | 9  | 23 |
|                             | not measuring upper level learning                   | 10 | 8  |
|                             | lenient marking                                      | 6  | 4  |
|                             | inadequate evaluation                                | -  | 9  |
|                             | not reading assignments                              | -  | 6  |
| Practice Teaching           | having the position of a key course                  | 9  | 14 |
|                             | lack of good planning and interest                   | 10 | 13 |
|                             | host teacher indifference                            | 6  | -  |
|                             | lack of time   | 5  | 9  |
|                             | lecturer indifference                                | -  | 10 |
| Educational environments    | poor physical conditions                             | 13 |    |
|                             | negative attitudes of administrators                 | 6  |    |
|                             | too many classes                                     | 7  |    |
| Educational system-Policies | focusing on exams and diplomas                       | 4  |    |
|                             | faculties and big student numbers                    | 4  |    |
|                             | memorization-based educational system                | 7  |    |
|                             | employment problems of teachers                      | 6  |    |
|                             | publication support by the HEC                       | 4  |    |
|                             | effects of politics on education                     | 4  |    |
| Recommendations             | academics working in groups                          | 3  |    |
|                             | accreditation system                                 | 4  |    |
|                             | in-service training                                  | 3  |    |
|                             | presenting student work                              | 4  |    |
|                             | activity pools                                       | 2  |    |
|                             | competence-based programs                            | 8  |    |
|                             | autonomous, competitive education                    | 4  |    |
|                             | getting rid of evening classes                       | 3  |    |
|                             | lecturer cooperation                                 | 6  |    |
|                             | training field-based educational scientists          | 7  |    |

#### General perceptions on PKC

Lecturers, students and graduates had the following general perceptions about PKC: Despite finding PKC important and necessary, they believe it does not meet its goals. Some lecturers said the following about why PKC are necessary and why they do not meet their goals:

Until the 40s, the view that «the one with knowledge teaches» was common. The development of pedagogy as a science shifted the focus to how knowledge should be taught. Someone who does not know the students or cannot carry out measurement and evaluation should not become a teacher (L1)

Overall, I do not believe they meet their goals. Our education system is exam-based. These courses are seen as a tool through which cognitive behaviors can be memorized to get a good score from the Public Personnel Selection Exam (PPSE) (L 9)

The physics course is taught very differently by a teacher who has taken PKC. A physics expert fills the blackboard and leaves. A teacher focuses on how to explain the topics, how to teach them (L8)

Lecturers think that field knowledge is not enough to teach. For instance, a chemist's chemistry knowledge is not enough to work as chemistry teacher; this knowledge needs to be complemented with a concern for "How do I teach this?", which requires training in the teaching profession. On the other hand, they also stated that the PKC currently offered at education faculties are cognitively oriented, owing to the PPSE. Teacher candidates emphasized that graduating from an education faculty is not enough to become teachers; they also need to pass the PPSE, and they therefore find it important to be able to answer PKC-related questions in the exam. Therefore, putting knowledge into practice is only a secondary issue.

According to the students and graduates, PKC are mostly enjoyable courses where student interest depends on the lecturer. However, there are opposing views that practice and theory in these courses do not overlap; student motivation is low; and the courses are boring and based on memorization.

I think PKC are useful, but my friends claim that they'd be good teachers without them too... We need to be free in PKC. I mean, we shouldn't be contained in the classroom. Education lecturers always say that we need round tables, we should teach outdoors in the schoolyard, schools should have practical courses. However, they don't practice what they preach (S2)

PPSE is a source of motivation for these courses (S8)

For us, PKC are only useful for getting passing grades. In fact, the teacher is an important factor; there are field courses as well where we get bored (S9)

I certainly can't claim to use what I learned in PKC in my teaching practice (S16)

In theory it's all great, just like politics, but in practice there are many problems. When I saw the unwillingness of students to learn during my internship, I thought that I should have been prepared for this much earlier (S23)

Student and graduates' perceptions of PKC were not different from those of lecturers. The views revealed that students experience a dilemma. Despite finding PKC important, they also stated that these courses do not equip them with teaching experience and have several deficiencies. They added that certain lecturers' classes are really effective, and that their interest in these courses depend on the lecturer. Similar to lecturers, students also referred to PPSE. Unfortunately, PPSE seems to be a source of motivation for students in PKC.

## **Content of PKC**

Regarding the content of PKC, lecturers emphasized the predominance of cognitive behaviors, the overlap between course content, the need for content reduction and deening, and the need for micro teaching to be a separate course.

Micro teaching, until before 98, was a separate course in the program of my faculty and it was both effective and enjoyable; it really prepared students for practice teaching (L16)

Micro teaching is an important practice that prepares teacher candidates to the teaching profession by repeatedly implementing fragmented instructional skills in the classroom. Before 1998, when educational sciences departments in Turkish education faculties prepared their own programs independently, some faculties offered micro teaching as a separate semester-long course to prepare students for practice teaching. When the HEC standardized PKC across all faculties after 1998, this course was integrated as a method into practicum courses such as Special Instruction Methods and School Experience (Alpan and Erdamar, 2011).

Students and graduates stated that PKC content is repetitive; the content of Introduction to Educational Sciences, Measurement and Evaluation, Turkish Educational System and School Administration courses should be reduced; and the duration of Measurement and Evaluation, Psychology of Education, Developmental Psychology, Educational Technology and Materials Design courses should be lengthened. They generally demanded that the micro teaching and drama practices used in "Special Instruction Methods" courses become independent courses in their own right.

Field courses should be stopped or reduced. PKC may be better during years 3 and 4. I don't remember the courses I received during my first year. Our difference from Faculties of Science and Letters should be better revealed (S3)

There are unlimited methods in the Instructional Principles and Methods course. What is important is for us to choose and teach methods in line with the field, students, learning styles and developmental characteristics (S12)

Measurement and evaluation was very difficult, it was a very boring class at graduate level. The topics were abstract, and we followed a book without any practice(S17)

Students and graduates demanded that the duration and content of PKC be aligned. They also asked for content that is congruent with their own fields. They complained that some course content is cognitively dense and tedious.

## **Implementation of PKC**

Lecturer and student views about the implementation of PKC were as follows: The courses are taught ineffectively in a teacher-centered way. Student needs are not considered. Classes generally require students to divide the topics amongst themselves and present them through slide shows. Classes are based on theory with very rare occasions of practice. Mostly, there is a single coursebook to be followed. Below is a different view from one of the lecturers:

Educational sciences lecturers claim that they can teach any course. However, not everybody can teach the Instructional Technologies and Materials Design course. They must know the field of the student (L14)

Currently, both field and educational sciences department lecturers teach the Instructional Technologies and Materials Design course mentioned by the lecturer. In certain departments, there is

an ongoing debate about who should teach this course. There are recommendations that this course needs to be taught jointly by two lecturers.

The Instructional Technologies and Materials Design course can of course be given jointly by a field lecturer and an educational scientist (L16)

A student from the Preschool Education Department stated that the Instructional Technologies and Materials Design course should be offered by educational scientists:

A field lecturer taught us Instructional Technologies and Materials Design. It had no difference from the Creative Activities for Children course. We sewed up lots of toys, made educational toys. An educational sciences lecturer would've been more effective (S10)

Student views about the implementation of other courses show that they stress the inadequacy of practical work in classes:

Instructional Principles and Methods, Materials Design were very good and student-centered. I have no idea why the Measurement and Evaluation course has to be so difficult... We can see sample questions in this course, we can prepare exams. Instead, we studied statistics and the lecturer made it unnecessarily hard. I wonder how much of that information we will actually use when we start teaching (S1)

Introduction to Educational Sciences, Instructional Principles and Methods, Turkish Educational System and School Administration courses were taught by the same lecturer, who made us examine articles in the classroom. What did they teach me... nothing more than a casual chat with a friend, they weren't effective, practical work would have been more permanent (S20)

Education courses are taught very theoretically; there is no practice. I went for practice teaching in a 6th grade class. I taught them as if they were university students (S12)

In assignments and courses where I'm not active, I can't learn (S34)

### **Qualities of Lecturers**

Lecturers made self-criticism about their own teaching qualities: They stated that their course load is too heavy; their academic studies and academic promotion criteria overshadow their instructional concerns, thus harming their teaching performance. Lecturers do not believe in the importance of the course and do not strive to improve educational problems. They can not reflect their scientific studies in their classrooms and cannot improve themselves as teachers. However, lecturers should in fact be able to win students' trust, act as role models, and communicate with them effectively. Below are some quotations about lecturers' teaching qualities:

I believe that instructional performance at universities is low. There are various reasons for this. the lecturer can't be the only one to blame. HEC supports publications. A good lecturer cannot be distinguished from others (L10)

There are lecturers who don't go to class, and then there are others who take their class really seriously. One lecturer built her class on practicum. The students were scared to start with, but they say they learned a lot (L7)

A lecturer from the Science Faculty sees herself as a scientist. There are lecturers with engineering backgrounds, and they don't accept teaching. They say «We are engineers» (L8)

While students and graduates stated that PKC lecturers should be experts in their fields, well-equipped and role models, they also emphasized the need for teaching experience in all stages of education and effective speaking details such as adjusting tone of voice.

The Introduction to Educational Sciences course was a total mess and the lecturer was not effective at all. It was as if he'd been forced into teaching the course. He kept coming late and fiddling with his phone during class time (S1)

Fifty percent of lecturers have good academic careers and field expertise, they are successful, but experience is also important. You see the difference between a lecturer with high or middle school experience and those without it. I don't agree that a lecturer with only university experience will be effective. This is just like «Getting someone to draw an apple by describing it while you have never seen one yourself (S7)

Our lecturers say «You art and music people are always the same, you never study or listen to us». Sitting down for three hours to listen to a lecture is indeed difficult for us (S16)

Many education lecturers have problems involving students in the course (S11)

Education courses are boring, deadly boring, and I'm not happy with the lecturers in general. One lecturer had a very annoying, screeching voice. And annoying behaviors as well (S14)

### **Measurement and Evaluation in PKC**

Lecturer views about measurement and evaluation in PKC were as follows: They stated that mostly cognitive behaviors are measured, information-loaded questions encourage students to memorize, alternative measurement and evaluation approaches are not covered, upper level learning can not be measured or evaluated, and some lecturers resort to giving high grades.

Most educational sciences lecturers use tests. Do tests trigger thinking? They keep students and lecturers happy, but require little effort as a technique. Lecturers advocate thinking but the technique decreases thinking (L10)

Lecturers who do not teach well give high grades. They try to avoid problems in this way. This may be due to the lecturer's character (L11)

There are some lecturers that enjoy abusing the students. They brag saying, «All that class got big fat zeros» (L15)

Students exemplified how measurement and evaluation takes place in PKC through the measurement and evaluation used by the lecturers of the Measurement and Evaluation course:

I like the question types of the Measurement and evaluation lecturer. There were 10 multiple choice items and 10 open-ended questions. Tests make us unable to comment on things (S12)

Measurement and evaluation lecturer asked long questions with short, memorization-based answers in the exam(S1)

Students also emphasized that there are courses where only test-based measurement and evaluation are used:

In courses such as Instructional Principles and Methods or Classroom Management, exams are tests-based and the questions require memorization (S13)

## **Practice Teaching**

Practice teaching is greatly valued by lecturers and students. Their views were as follows: Practice teaching is a key course in the curriculum, but it is not taught effectively. Practice teachers are not interested in this. Practice teaching should be allotted more time.

The senior year, especially its second term, is a dead time for students when they aren't interested in the courses. Perhaps it would be better for graduates to take the PPSE. Students' interest in practicum courses decline... And practice teachers assign the same grade to all teacher candidates. A few colleagues and I teach practice teaching but we aren't considered good teachers as we watch the students carefully. ... The teacher candidate took mud to the classroom, instead of dough, as natural material. The practice teacher didn't accept it for cleanliness reasons(L12)

Most teachers in practice schools are older teachers who do not make lesson plans. They tell teacher candidates «There's no need to plan your classes. You're going to stop doing that in two years' time anyway». Staffrooms are full of such fed-up, worn-out teachers. How can they act as role models for teacher candidates?(L 15)

In addition, students and graduates touched upon the difficulty of teaching practice in mixed and difficult classes. They stated their wish for lecturers to observe and feed back to them.

Practice teaching does not meet any of its aims. I went to Belgium on an Erasmus grant. They spend 1,5 months solely on this. Each week, they go to a different school to get experience. Schools from different socio economic levels, and schools with disabled and gifted children are all selected. The teacher candidate collects points from each experience. If the total score is low, no diploma is granted to that candidate. In Turkey, practice teaching is there just for appearances. It's not done well. Based on what I hear from my friends studying at other institutions, I gather Gazi University is still one of the better ones(S1)

The lecturer observed our last class and gave us feedback, but only negative feedback. And the class teacher who found out that I was already teaching at a private tutorial center left the classroom to me and went off (S20).

## **Educational environments of PKC**

Lecturer views about the educational environments of PKC were not positive. They agreed that the physical conditions of the faculty are inadequate. There are too many classes. Occasionally, administrators display negative attitudes. Practicum conditions are insufficient.

Student observations in my practice teaching clashed with other courses in my schedule. The dean said «You don't have to go to the schools to observe students»(L5)

## **Education System and Policies**

Lecturers shared their views by pointing out that views about the educational system and policies cannot be separate from PKC: The educational system is based on memorization, exams and diploma. The number and size of education faculties are too big. Teachers have employment and assignment problems. The HEC supports not successful lecturers, but publications. Administrators' educational philosophies and attitudes are wrong. Politics has too much influence on education.

People with no interest with educational sciences say «if there's a course book, I'll teach it». Administrators sometimes allow this (L1)

Politics has a lot of influence on education, this should be stopped. Politics also influences program development, which is not a scientific approach (L11)

### **Recommendations**

The final theme for lecturer views was recommendations. The following were recommended: Academics should work in groups. Academics at education faculties should have elementary, middle and high school teaching experience. An accreditation system should be introduced. Lecturers should be given in-service training. Students' individual and group work, course outcomes should be displayed. Curricula should include activity pools in addition to course content. Courses should be designed according to the competence based program approach. Education should be autonomous and competitive. "Evening classes" taught after 17:00 pm should be cancelled. Lecturers from educational sciences and those teaching field courses should collaborate. Field-based educational scientists should be trained.

I don't see students use what they learn in PKC in the special instruction methods and practice teaching courses. I think it would be better if these courses are taught by people who are doing their graduate degrees in educational sciences (L3)

At times, we contradict with education lecturers. And sometimes students come and consult us. Education lecturers sometimes ask students to engage in an activity that we tell them "won't work in class (L13)

## **CONCLUSION AND DISCUSSION**

When PKC-related student and lecturer comments are examined, three views seem to stand out. First, PKC are necessary and important for high quality teacher education. There are many studies supporting this proposition (Cansaran, İdil and Kalkan, 2006; Çakan, 2004; Çetintaş and Genç, 2005; Demircan, 2007; Eraslan, 2009; Gündüz and Odabaşı, 2004; Kılıç, 2004; Kılınç and Altuk, 2010; Özkılıç, Bilgin and Kartal, 2008; Sarıtaş, 2007; Şahin, 2007; Yüksel, 2011). Second, PKC implementation does not involve practice. PKC are generally theory-based, teacher-centered, far from constructivism, and they follow a traditional approach, mostly based on one single resource. Students in these courses give Powerpoint presentations. Alpan (2013), Demir (2012), Kahramanoğlu (2010), Yanpar-Yelken, Çelikkaleli and Çapri's (2007) results corroborate these findings. Teacher candidates should be able to integrate theoretical information obtained from PKC, which tells them how to use and teach the information from field courses, with practicum (Küçükahmet, 2003; Şirin and Cesur, 2008; Taşkın and Hacıömeroğlu, 2010). Third, the measurement and evaluation in PKC do not include alternative approaches and are mostly traditional. Measurement largely takes place at lower levels with memorized knowledge and cognitive behaviors (Demir, 2012). Studies on teachers' and teacher candidates' measurement and evaluation competence (Anıl and Acar 2008; Çelikkaya, Karakuş and Demirbaş, 2010; Gelbal and Kelecioğlu, 2007) have shown that they are not knowledgeable enough in alternative methods. Demirbaş and Yağbasan (2004) also found that alternative methods were not used when evaluating affective behaviors. These results not only question the quality of the Measurement and Evaluation course offered as a PKC in teacher education faculties, but also suggest that lecturers teaching other PKC courses do not form role models regarding this issue either. The views below are elaborations on the three mentioned above.

PKC are unable to meet their goals, and lecturers teaching these courses ultimately shape student perceptions of them. Taşkın and Hacıömeroğlu (2010) found similar results in their study. They examined the views of 72 teacher candidates about PKC. While 58 said that PKC positively affected their viewpoints about the teaching profession, others stated that they did not find the courses adequate and they did not alter their perspectives of the profession in any way. Lecturer quality is important for positive perceptions of PKC. According to the results of the study, lecturers should be better equipped, value their courses, communicate effectively with their students, and keep them active. Many researchers concede that knowing a subject well is not enough by itself for successful

teaching (Erden, 1999; Yüksel, 2009). Kavcar (2002) stresses the significance of teacher education in her article. She states that the “teacher educating teacher type” is somewhat neglected in Turkey. This comment corroborates the lecturer quality aspect of the present study. Ekici (2008) emphasizes in her study the importance for PKC lecturers to consider individual differences between teacher candidates while establishing the instructional environment. Şen and Erişen (2002) studied the characteristics of effective teaching among education faculty lecturers and concluded that while lecturers generally rate themselves as sufficient in effective teaching characteristics, teacher candidates think them less effective. In addition, teacher candidates do not think lecturers communicate with students effectively, either. These findings are parallel to the results of the present study.

Overall, the PKC content determined by the HEC has brought along standardization, but research has revealed repetitive course content, little practical work and activities, and overambitious content in some courses. The participants advocate micro teaching and drama not merely as a method, but as separate semester-long courses. Peker (2009) also states in his study that teacher candidates benefit greatly from micro teaching and proposes that it take place throughout the semester. Başcı and Gündoğdu (2011) studied the attitudes and views of teacher candidates towards the drama course and found that the course has positive effects on them.

Practice teaching has a critical place in PKC. The results suggest that faculties and practice schools do not emphasize practice teaching sufficiently. Practice teaching is a great opportunity for teacher candidates to practice what they have learned but their PPSE preparation concerns overshadow practice teaching preparations. Research shows that practice teaching affects teacher candidates positively and helps them grow, but the interaction and cooperation level between faculties and practice teaching schools must be improved (Hasher, Cocard and Moser, 2004; Dallmer, 2004; Çetintaş and Genç, 2005; Altıntaş and Görgen, 2014; Kılıç, 2004). Some studies also point to the importance of practice teaching lecturers and teachers jointly guiding teacher candidates, evaluating their experiences and sharing their views (Eraslan, 2009; Özkılıç, Bilgin and Kartal, 2008;). Parallel to the results of this study, certain previous studies have concluded that having teacher candidates go through practice teaching at the same time period as PPSE preparation affects the process negatively (Eraslan, 2009; Gökçe and Demirhan 2005; Altıntaş and Görgen, 2014; Yılmaz and Kab 2013).

Other views mentioned by lecturers in the study have been given under the heading “educational environment, educational system and recommendations”. Overall, these views state that education faculties do not have the necessary environment for PKC. Okçabol (2004) studied the phenomenon of teacher education through student, teacher, lecturer and teacher candidate views, and spotted education faculties as the prime holder of responsibility. According to her study, education faculties seem to be not sufficient in making students embrace the teaching profession, turning them into free individuals, boosting their self-esteem, strengthening their interpersonal relationships, enriching them socially and culturally, improving their cognition and intellect, and giving them a scientific viewpoint. The exam and diploma-based, politically influenced educational system lies at the heart of these problems. The huge number of teacher candidates at education faculties not only increase lecturers’ course load, but also affect other environmental conditions adversely. At the same time, the system evaluates lecturers not by their instructional performance but by their academic publications and project performance. Previous studies are laden with similar discussions (Özyürek 2008; Saylan, 2014; Şişman, 2009; Yüksel, 2011).

Based on these findings, the following recommendations may be made: The relationship between the quality of teacher education and PKC should be considered carefully. Field experts and stakeholders should plan and conduct studies in program development and evaluation in order to train better qualified teachers. PKC should be redesigned through a participative, scientific, competence-based program development model.

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## **Describing and comparing pragmatic language skills of Turkish students with typical development and inclusive education students with mild intellectual disability**

**Özlem Diken<sup>i</sup>**  
Anadolu University

### **Abstract**

The purpose of this study is to describe and compare pragmatic language skills of Turkish students with typical development and inclusive education students with mild intellectual disability. Participants included 152 primary school students (75 students were students with typical development-STD, and 77 students were inclusive education students with mild intellectual disability-IES) aged between 5 and 12. Data were collected via Turkish version of Pragmatic Language Skills Inventory (TV-PLSI, Alev, Diken, Ardiç, Diken, Şekercioğlu and Gilliam, 2014). Results indicated that out of 75 students with typical development (STD), 58 (77,4 %) had average or above average pragmatic language skills whereas out of 77 inclusive education students (IES), only 17 (22,1 %) showed average or above average pragmatic language skills. More specifically, 60 (77,9) IES had below average, poor and very poor pragmatic language skills. Results on comparisons of two groups also revealed that students with typical development showed higher pragmatic language skills than inclusive education students with mild intellectual disability on total score and three subtest scores of the TV-PLSI. Suggestions were provided.

**Keywords:** Pragmatic language skills, Turkish students with intellectual disabilities, inclusion, typical students.

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<sup>i</sup> **Özlem Diken**, Assoc. Prof. Dr., Anadolu University, Faculty of Education, Department of Special Education

**Correspondence:** odogramaci@anadolu.edu.tr

## INTRODUCTION

Describing and comparing pragmatic language skills of Turkish students with typical development and inclusive education students with mild intellectual disability Introduction

As pragmatics is an application area where the rules of the language are applied in social interactions with the purpose of communication and it involves applying the rules of the language and expressing communicative intentions during the conversation (Kuder, 1997), pragmatic language skills can be defined as the use of language according to the context (Bishop, 2000). Rather than the grammar rules and the content components of the language, pragmatic language skills involve the individual's ability to know exactly with whom, where, when and how to speak, conversational organization, topic maintenance, recovering the pauses/discontinuities in the conversation, the ability to take conversational turns and expressing communicative intentions clearly (Hatton, 1998; Ketelaars, 2010; Owens, 1999)

Spekman and Roth (1982) categorized pragmatic skills into three groups: communicative intentions, presupposition and conversational organization. While communicative intentions involve both the use of certain structures to express these intentions and understanding and expressing these intentions properly, presupposition involves determining the knowledge and social needs of the listener exactly and adaptation to the style and content of the message. Conversational organization involves topic maintenance, recovering the pauses/discontinuities in the conversation, and the ability to take conversational turns. The acquisition and use of pragmatic language skills in our daily lives continues to improve. The improvement of these skills taking root in infancy accelerates especially in preschool years and this improvement continues during the school years and the rest of our lives. Pragmatic language skills influences the quality of life directly in many ways such as the initiation of interaction and its maintenance, making new friendships, finding a job, leisure time activities and social acceptance.

Pragmatic language skills concern the acquisition and display of the ability to know when to speak or not to speak, when to speak to whom, where and how to speak rather than more formal language skills such as grammar and meaning. Moreover, in addition to being an individual right of those with intellectual disability, pragmatic language skills deal with these people's quality of life and problems related to the services offered to them. Cognitive ability has an important role in the acquisition and display of the advanced/sophisticated pragmatic language skills. There are some evidences indicating that cognitive factors play a more important role than linguistic factors in the acquisition of pragmatic language skills. The limit and effect of intellectual disability in the acquisition of pragmatic language skills is not clear for the time being. However, the majority of the individuals with intellectual disability cannot fulfill their true potential for pragmatic language skills. The studies about the pragmatic language skills of the individuals with intellectual disability show that these people can acquire the basic pragmatic language skills but they cannot acquire advanced/sophisticated/complex pragmatic skills (Hatton, 1998).

Many studies reveal that children with intellectual disability can acquire basic pragmatic language skills, reorganize their expressions properly if they are asked to explain them again and that they can acquire and display conversational sufficiency, but they usually cannot display the fine details of being competent in conversational skills (Hatton, 1998). Nonetheless, the quality of the child's communication environment can be limiting/restrictive in the acquisition and use of pragmatic language skills. Individuals with intellectual disability have difficulty in understanding communicative intentions. Communicative intentions include wanting, rejection, asking questions, describing, etc. and when asked the question "Can you open the window?", an individual with intellectual disability, in comparison with his/her peers, is slower to understand the intention of "Do you have the ability to open the window" and "I want you to open the window". Their reactions are similar to those given by children at the same intelligence age and they are observed to have all basic verbal action categories in adulthood. There is also evidence demonstrating that children with intellectual disability use various conversation strategies depending on their conversation partners. They determine the status of their

conversation partners and ask for service and information accordingly or diversify the situations of asking for request or knowledge directly. On the other hand, it has been pointed out that when the problem about the conversation continues, children with intellectual disability cannot continue to reorganize their words and when they take turns during the conversation, they participate in the conversation by confirming what has been said rather than by initiating a topic and giving additional information. Moreover, they were observed to be slow in recovering conversational pauses/discontinuities and satisfying the demands of additional knowledge made by the listener (Kuder, 1997).

Studying pragmatic language skills of individuals with intellectual disability provide us greater insights when evaluated their developmental domains and when developed individualized education plans as pragmatic language skills are one of the most important language abilities when being included into society. Therefore, studies focusing on pragmatic language skills of individuals with intellectual disability and comparing their skills with their peers with typical developments are needed. This study comes from this need and aims at comparing pragmatic language skills of Turkish students with typical development and inclusive education students with mild intellectual disability. Since there seems no study describing and comparing pragmatic language skills of Turkish students with typical development and inclusive education students with mild intellectual disability, this study will add insightful information and fill a gap on this era. The following questions were addressed for this purpose: (1) What is the pragmatic language skill levels of students with typical development and inclusive education students with mild intellectual disability?, (2) Is there a significant difference between pragmatic language skill scores of students with typical development and inclusive education students with mild intellectual disability with regard to gender and group?

## METHOD

### Participants

Participants of the study included 152 primary school students aged between 5 and 12. Out of 152, 75 students were students with typical development (STD), and 77 students were inclusive education students with mild intellectual disability (IES). Ages of STD ranged from 63 to 156 month with a mean of 95.60 month (SD=15.72) whereas ages of IES ranged from 71 to 152 month with a mean of 101.50 month (SD=14.86). Out of 75 STD, 12 (16%) were first grade, 21 (28%) were second grade, 15 (20%) were third grade, and 27 (36%) were fourth grade students. Thirty-eight (51%) were male, 37 (49%) were female students. Out of 77 IES, 10 (13%) were first grade, 24 (31%) were second grade, 19 (25%) were third grade, and 24 (31%) were fourth grade students. Thirty-four (44%) female, 43 (56%) were male students. Regarding teachers of STD, 50 (67%) female and 25 (33%) were male. Regarding teachers of IES, 50 (65%) were female, 27 (35%) were male. Table 1 provides information about demographics of participants.

### Measures

*Pragmatic Language Skills Inventory (PLSI, 2004).* Pragmatic Language Skills Inventory was created by James Gilliam and Lynda Miller in 2004 in United States of America. It is a tool consisted of 45 items, and is norm referenced, based on teacher evaluation. PLSI is comprised of three subscales (Classroom Interaction Skills, Social Interaction Skills, Personal Interaction Skills) with 15 items in each, and a total of 45 items. Evaluation category is pragmatic language development of 5-12 years old children. It uses 9 points Likert type scale and can be applied in mere 5-10 minutes. Evaluating teacher scores the child in three sub-categories from below normal to normal and above normal that divided between 1 to 9 points in total. Total score then is converted to Pragmatic Language Skills Index indicating level of pragmatic language skills compared to the norm of the corresponding child's same age and same gender.

Pragmatic Language Skills Inventory (PLSI) was adapted into Turkish and standardized in Turkey by Alev, Diken, Ardic, Diken, Şekercioğlu and Gilliam (2014) with 1383 students (1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> grade students) aged between 5 and 12. V-Conventional item analysis of Turkish Version of Pragmatic Language Skills Inventory (TV-PLSI) showed that all values fall into the acceptable range. Correlation of TV-PLSI Subscale Standard Scores were between .71 and .81 while correlation of TV-PLSI Subscales with Pragmatic Language Skills Index were between .76 and .84.

**Table 1: Demographic information about participants**

|                             | Group |     |       |     |
|-----------------------------|-------|-----|-------|-----|
|                             | STD*  |     | IES** |     |
|                             | n     | %   | n     | %   |
| Gender (Students)           |       |     |       |     |
| <i>Female</i>               | 37    | 49  | 34    | 44  |
| <i>Male</i>                 | 38    | 51  | 43    | 56  |
| Total                       | 75    | 100 | 77    | 100 |
| Grades                      |       |     |       |     |
| <i>1<sup>st</sup> Grade</i> | 12    | 16  | 10    | 13  |
| <i>2<sup>nd</sup> Grade</i> | 21    | 28  | 24    | 31  |
| <i>3<sup>rd</sup> Grade</i> | 15    | 20  | 19    | 25  |
| <i>4<sup>th</sup> Grade</i> | 27    | 36  | 24    | 31  |
| Total                       | 75    | 100 | 77    | 100 |
| Gender (Teachers)           |       |     |       |     |
| <i>Female</i>               | 50    | 67  | 50    | 65  |
| <i>Male</i>                 | 25    | 33  | 27    | 35  |
| Total                       | 75    | 100 | 77    | 100 |

\*STD: Students with Typical Development, \*\*IES: Inclusive Education Students with mild intellectual disability

Discriminant validity analysis of TV-PLSI showed that TV-PLSI discriminated students with autism, students with intellectual disabilities from those with typical development. Confirmatory Factor Analysis ( $\chi^2/df_{(2412.67/938)}=2.57$ ;  $p<.01$ , RMSEA=.089, NNFI=.96) validated three-factorial patterns of TV-PLSI. Regarding internal reliability, Cronbach Alpha coefficients ranged from .95 to .98 for subscales and total score while test-retest reliability analysis revealed .99 correlation coefficient for all scales. Reliability of TV-PLSI rechecked for the current study with the current sample, Table 2 shows the results indicating TV-PLSI has reliable Cronbach Alpha coefficients to be used in this study

**Table 2: Cronbach Alpha Coefficients of TV-PLSI with the current sample**

|         | Classroom Interaction Skills Subscale | Social Interaction Skills Subscale | Personal Interaction Skills Subscale | Pragmatic Language Skills Index (Total Score) |
|---------|---------------------------------------|------------------------------------|--------------------------------------|---|
| Genders |                                       |                                    |                                      |   |
| Female  | .99                                   | .99                                | .98                                  | .99   |
| Male    | .98                                   | .98                                | .98                                  | .99   |

### Data collection and analysis

Data were collected from Eskişehir, Turkey. Before carrying out the study, author contacted with Eskişehir Tepebaşı Guidance and Research Center, a state center coordinating special education services affiliated with Ministry of National Education and the Province of Antalya Education

Directorate in Turkey in order to find out how many current inclusion classrooms at the first, second, third and fourth grades of primary schools in Tepebaşı, Eskişehir there were and to get legal permission. There were a total of 103 grades at the first, second, third and fourth grades of primary schools in Tepebaşı, Eskişehir. Eskişehir Tepebaşı Guidance and Research Center distributed TV-PLSI to teachers working in these classrooms. Teachers were informed about the study and signed a consent form to be part of study. Teachers were also informed about how to fill out the form. Regarding filling out the forms, teachers were asked to fill out forms for IES and STD in their classrooms. They were informed to fill out one form for IES students, and then choose tenth STD in their regular classroom name list. If they had two IES students, they filled out two forms; one for tenth and the other for twentieth STD in their regular classroom name list. After filling out the forms, Eskişehir Tepebaşı Guidance and Research Center collected them. After removing unfilled/inappropriate forms, a total of 152 forms were remained for data analysis.

## RESULTS

### Pragmatic language skills levels of participants

Following scoring guidelines of TV-PLSI, standard scores gathered from TV-PLSI converted to Pragmatic Language Skills Index indicating level of pragmatic language skills compared to the norm group. As can be seen from Table 3, out of 75 students with typical development (STD), 58 (77,4 %) had average or above average pragmatic language skills whereas out of 77 inclusive education students (IES), only 17 (22,1 %) showed average or above average pragmatic language skills. More specifically, 60 (77,9) IES had below average, poor and very poor pragmatic language skills.

**Table 3: Level of Pragmatic Language Skills**

| Level of PLS***  | TV-PLSI**** | Groups |      |       |      |
|------------------|-------------|--------|------|-------|------|
|                  |             | STD*   |      | IES** |      |
|                  |             | f      | %    | f     | %    |
| 1. Very Poor     | <63         | -      | -    | 25    | 32.5 |
| 2. Poor          | 64-76       | 7      | 9.3  | 22    | 28.6 |
| 3. Below Average | 77-89       | 10     | 13.3 | 13    | 16.9 |
| 4. Average       | 90-110      | 35     | 46.7 | 14    | 18.2 |
| 5. Above Average | 111-117     | 14     | 18.7 | 3     | 3.9  |
| 6. Superior      | 118-122     | 8      | 10.7 | -     | -    |
| 7. Very Superior | >123        | 1      | 1.3  | -     | -    |
| Total            | -           | 75     | 100  | 77    | 100  |

\*STD: Students with Typical Development, \*\*IES: Inclusive Education Students, \*\*\*PLS: Pragmatic Language Skills, \*\*\*\*TV-PLSI: Turkish Version of Pragmatic Language Skills Index

Comparison of pragmatic language skills total scores of participants with regard to gender and group

A two-way between-groups analysis of variance was conducted to explore the impact of group and gender on levels of pragmatic language skills, as measured by the Turkish Version of Pragmatic Language Skills Inventory (TV-PLSI). Levene's Test of Equality of Error Variances was checked and found as .34 indicating that not violating the homogeneity of variances assumption. Results revealed that there was a statistically significant main effect for group [ $F(1, 148)=101.64, p=.00$ ]; the effect size was large (partial eta squared=.41).

**Table 4: Descriptive results for comparison of pragmatic language skills total scores of participants with regard to gender and group**

| Group | Gender | N   | Mean  | SD    |
|-------|--------|-----|-------|-------|
| STD   | Female | 38  | 29.84 | 7.82  |
|       | Male   | 37  | 30.89 | 8.43  |
|       | Total  | 75  | 30.36 | 8.09  |
| IES   | Female | 34  | 13.21 | 10.11 |
|       | Male   | 43  | 17.98 | 9.52  |
|       | Total  | 77  | 15.87 | 10.01 |
| Total | Female | 72  | 21.99 | 12.22 |
|       | Male   | 80  | 23.95 | 11.07 |
|       | Total  | 152 | 23.02 | 11.63 |

As can be seen at Table 4, descriptive statistics indicated that the mean score for the STD group ( $M=30.36$ ,  $SD=8.09$ ) was higher than the mean score for the IES group ( $M=15.87$ ,  $SD=10.01$ ). Results also revealed that there was a statistically significant main effect for gender [ $F(1, 148)=31.94$ ,  $p=.04$ ]; the effect size was small (partial eta squared=.03). Descriptive statistics indicated that the mean score for females ( $M=21.99$ ,  $SD=12.22$ ) was lower than the mean score for males ( $M=23.95$ ,  $SD=11.07$ ). The interaction effect [ $F(2, 429)=1.61$ ,  $p=.20$ ] did not reach statistical significance (Table 5).

**Table 5: Results of two-way between-groups analysis of variance on total scores with regard to gender and group**

| Source          | Sum of Squares | df  | Mean Square | F      | Sig. | Partial Eta Squared |
|-----------------|----------------|-----|-------------|--------|------|---------------------|
| Corrected Model | 8429.79*       | 3   | 2809.93     | 34.67  | .00  | .41                 |
| Intercept       | 79696.58       | 1   | 79696.58    | 983.32 | .00  | .87                 |
| Group           | 8237.72        | 1   | 8237.72     | 101.64 | .00  | .41                 |
| Gender          | 319.60         | 1   | 319.59      | 3.94   | .04  | .03                 |
| Group* Gender   | 130.61         | 1   | 130.61      | 1.61   | .20  | .01                 |
| Error           | 11995.16       | 148 | 81.05       |        |      |                     |
| Total           | 100971.00      | 152 |             |        |      |                     |
| Corrected Total | 20424.94       | 151 |             |        |      |                     |

\*R Squared = .413 (Adjusted R Squared = .401)

Comparison of pragmatic language skills sub-test scores of participants with regard to gender and group

In order to explore the impact of group and gender on levels of pragmatic language skills, as measured by the Turkish Version of Pragmatic Language Skills Inventory (TV-PLSI), three two-way between-groups analysis of variance were conducted to for classroom interaction skills sub-test, social interaction skills sub-test, and personal interaction skills subtest as three sub-tests of the PLSI. Since three different two-way between-groups analysis of variance would be carried out, Bonferroni adjustment was applied (.05 divided by 3) and .017 alpha level was used (Tabachnick and Fidel 1996, p. 51).

*Comparison of classroom interaction skills scores of participants with regard to gender and group*

A two-way between-groups analysis of variance was conducted to explore the impact of group and gender on levels of pragmatic language skills, as measured by the Turkish Version of Pragmatic Language Skills Inventory (TV-PLSI). Levene's Test of Equality of Error Variances was checked and found as .08 indicating that not violating the homogeneity of variances assumption. Results revealed that there was a statistically significant main effect for group [ $F(1, 148)=93.21, p=.00$ ]; the effect size was large (partial eta squared=.39). Descriptive statistics (Table 6) indicated that the mean score for the STD group ( $M=10.19, SD=2.78$ ) was higher than the mean score for the IES group ( $M=5.38, SD=3.56$ ). Results also revealed that there was a statistically significant main effect for gender [ $F(1, 148)=65.59, p=.01$ ]; the effect size was small (partial eta squared=.04). Descriptive statistics (Table 5) indicated that the mean score for females ( $M=7.22, SD=4.20$ ) was lower than the mean score for males ( $M=8.23, SD=3.77$ ). The interaction effect [ $F(1, 148)=1.48, p=.22$ ] did not reach statistical significance (Table 7).

**Table 6: Descriptive results for comparison of classroom interaction skills scores of participants with regard to gender and group**

| Group | Gender | N   | Mean  | SD   |
|-------|--------|-----|-------|------|
| STD   | Female | 38  | 9.84  | 2.80 |
|       | Male   | 37  | 10.54 | 2.75 |
|       | Total  | 75  | 10.19 | 2.78 |
| IES   | Female | 34  | 4.29  | 3.53 |
|       | Male   | 43  | 6.23  | 3.39 |
|       | Total  | 77  | 5.38  | 3.56 |
| Total | Female | 72  | 7.22  | 4.20 |
|       | Male   | 80  | 8.23  | 3.77 |
|       | Total  | 152 | 7.75  | 3.99 |

**Table 7: Results of two-way between-groups analysis of variance on classroom interaction skills scores with regard to gender and group**

| Source          | Sum of Squares | df  | Mean Square | F      | Sig. | Partial Eta Squared |
|-----------------|----------------|-----|-------------|--------|------|---------------------|
| Corrected Model | 959.53*        | 3   | 319.84      | 32.53  | .00  | .40                 |
| Intercept       | 9012.19        | 1   | 9012.19     | 916.72 | .00  | .86                 |
| Group           | 916.33         | 1   | 916.33      | 93.21  | .00  | .39                 |
| Gender          | 65.59          | 1   | 65.59       | 6.67   | .01  | .04                 |
| Group* Gender   | 14.50          | 1   | 14.50       | 1.48   | .22  | .01                 |
| Error           | 1454.98        | 148 | 9.83        |        |      |                     |
| Total           | 11544.00       | 152 |             |        |      |                     |
| Corrected Total | 20424.94       | 151 |             |        |      |                     |

\*R Squared = .397 (Adjusted R Squared = .385)

Comparison of social interaction skills scores of participants with regard to gender and group

A two-way between-groups analysis of variance was conducted to explore the impact of group and gender on levels of pragmatic language skills, as measured by the Turkish Version of Pragmatic Language Skills Inventory (TV-PLSI). Levene's Test of Equality of Error Variances was checked and found as .91 indicating that not violating the homogeneity of variances assumption. Results revealed that there was a statistically significant main effect for group [ $F(1, 147)=105.53, p=.00$ ]; the effect size was large (partial eta squared=.42). Descriptive statistics (Table 8) indicated that the mean score for

the STD group ( $M=9.51$ ,  $SD=2.91$ ) was higher than the mean score for the IES group ( $M=4.49$ ,  $SD=3.28$ ). Results also revealed that there was statistically significant main effect for gender [ $F(1, 148)=4.30$ ,  $p=.04$ ]. The interaction effect [ $F(1, 148)=2.29$ ,  $p=.13$ ] did not reach statistical significance (Table 9).

**Table 8: Descriptive results for comparison of social interaction skills scores of participants with regard to gender and group**

| Group | Gender | N   | Mean | SD   |
|-------|--------|-----|------|------|
| STD   | Female | 38  | 9.37 | 2.78 |
|       | Male   | 37  | 9.65 | 3.06 |
|       | Total  | 75  | 9.51 | 2.91 |
| IES   | Female | 34  | 3.50 | 3.17 |
|       | Male   | 43  | 5.29 | 3.17 |
|       | Total  | 77  | 4.49 | 3.28 |
| Total | Female | 72  | 6.60 | 4.17 |
|       | Male   | 80  | 7.33 | 3.79 |
|       | Total  | 152 | 6.98 | 3.98 |

**Table 9: Results of two-way between-groups analysis of variance on social interaction skills scores with regard to gender and group**

| Source          | Sum of Squares | df  | Mean Square | F      | Sig. | Partial Eta Squared |
|-----------------|----------------|-----|-------------|--------|------|---------------------|
| Corrected Model | 1012.59*       | 3   | 337.53      | 36.26  | .00  | .43                 |
| Intercept       | 7253.80        | 1   | 7253.80     | 779.27 | .00  | .84                 |
| Group           | 982.33         | 1   | 982.33      | 105.53 | .00  | .42                 |
| Gender          | 40.05          | 1   | 40.05       | 4.30   | .04  | .03                 |
| Group* Gender   | 21.27          | 1   | 21.27       | 2.29   | .13  | .02                 |
| Error           | 1368.35        | 147 | 9.31        |        |      |                     |
| Total           | 9738.00        | 152 |             |        |      |                     |
| Corrected Total | 2380.94        | 151 |             |        |      |                     |

\*R Squared = .425 (Adjusted R Squared = .414)

Comparison of personal interaction skills scores of participants with regard to gender and group

A two-way between-groups analysis of variance was conducted to explore the impact of group and gender on levels of pragmatic language skills, as measured by the Turkish Version of Pragmatic Language Skills Inventory (TV-PLSI). Levene's Test of Equality of Error Variances was checked and found as .12 indicating that not violating the homogeneity of variances assumption. Results revealed that there was a statistically significant main effect for group [ $F(1, 147)=67.78$ ,  $p=.00$ ]; the effect size was large (partial eta squared=.31). Descriptive statistics (Table 10) indicated that the mean score for the STD group ( $M=10.67$ ,  $SD=2.96$ ) was higher than the mean score for the IES group ( $M=6.06$ ,  $SD=3.93$ ). Results also revealed that there was no statistically significant main effect for gender [ $F(1, 148)=1.20$ ,  $p=.28$ ]. The interaction effect [ $F(1, 148)=.93$ ,  $p=.34$ ] did not reach statistical significance (Table 11).

**Table 10: Descriptive results for comparison of personal interaction skills scores of participants with regard to gender and group**

| Group | Gender | N   | Mean  | SD   |
|-------|--------|-----|-------|------|
| STD   | Female | 38  | 10.63 | 2.93 |
|       | Male   | 37  | 10.70 | 3.04 |
|       | Total  | 75  | 10.67 | 2.96 |
| IES   | Female | 34  | 5.41  | 3.99 |
|       | Male   | 43  | 6.58  | 3.85 |
|       | Total  | 77  | 6.06  | 3.93 |
| Total | Female | 72  | 8.17  | 4.33 |
|       | Male   | 80  | 8.49  | 4.04 |
|       | Total  | 152 | 8.34  | 4.17 |

**Table 11: Results of two-way between-groups analysis of variance on personal interaction skills scores with regard to gender and group**

| Source          | Sum of Squares | df  | Mean Square | F      | Sig. | Partial Eta Squared |
|-----------------|----------------|-----|-------------|--------|------|---------------------|
| Corrected Model | 830.62*        | 3   | 276.87      | 22.80  | .00  | .32                 |
| Intercept       | 10477.45       | 1   | 10477.45    | 862.79 | .00  | .85                 |
| Group           | 823.09         | 1   | 823.09      | 67.78  | .00  | .31                 |
| Gender          | 14.52          | 1   | 14.52       | 1.20   | .28  | .01                 |
| Group* Gender   | 11.38          | 1   | 11.38       | .93    | .34  | .01                 |
| Error           | 1797.27        | 148 | 12.14       |        |      |                     |
| Total           | 13189.00       | 152 |             |        |      |                     |
| Corrected Total | 2627.89        | 151 |             |        |      |                     |

\*R Squared = .316 (Adjusted R Squared = .302)

## DISCUSSION

As the current study aims at describing and comparing pragmatic language skills of students with typical development (STD) and inclusive education students with mild intellectual disability (IES), several significant differences were found between two groups as well as genders. Results in general showed that IES had lower pragmatic language skills in total score and all subdomains than STD group. In addition, males in both groups had higher levels of pragmatic language skills in total score and sub-domains except for personal interaction skill scores. Several authors (e.g., Green, Johnson, & Bretherton, 2013; Rispoli, Franco, Meer, Lang, & Camargo, 2010) including Diken (2014) in her study with Turkish individuals with Developmental Disabilities reported that children with intellectual disability had lower levels of pragmatic language skills than children with typical development and pragmatic problems such as conversational taking-turn problems, following the needs of listener, problems with reading others' verbal or nonverbal cues, problems with understanding sarcasm, jokes and metaphors are common in individuals with developmental disabilities (DD). More specifically Diken (2014) found that although both students with intellectual disabilities and students with autism had lower level of pragmatic language skills, students with intellectual disabilities had higher level of pragmatic language skills than students with autism. Regarding differences found on gender, males were found that they had higher level of pragmatic language skills in each group and in total, we may discuss this result from a developmental perspective in which males mostly show externalizing behaviors whereas females show internalizing behaviors. Being naturally motivated as externalizer, males have more chances to use pragmatic language skills

than females who naturally motivated as showing internalizing behaviors. With understanding this limited explanation of this result, the author believes that more studies are needed to understand why males in both group of typical development and intellectual disabilities show higher levels of pragmatic language skills than females. In addition to exploring this result in depth in other studies, more studies are needed to understand well pragmatic aspects of Turkish children with developmental disabilities since pragmatic language skills need to be considered closely when planning intervention or education plans for these students as pragmatic language skills are essential skills to be included in the society. Having more quantitative and qualitative studies on pragmatic language skills of children with developmental disabilities will also improve international knowledge base and provide info for cross-cultural or cross-language studies.

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## **The Role of Ethics in 21st Century Organizations**

**Jenny E. Grigoropoulos<sup>i</sup>**

American Community Schools of Athens

### **Abstract**

Business ethics is a highly discussed and debated subject in today's corporate and business world, as well as in educational and academic circles. There are certain parameters, which influence the extensive level and degree to which ethics has been analyzed by scholars and researchers in recent years, such as globalization, technology, intangible assets, talent management. Meanwhile, organizations that are inclined in performing according to ethical standards, morals, and values, have recognized the importance and significance that ethical procedures and policies are communicated and practiced throughout the entire organization, while at the same time becoming a priority for the administration of the organization. Organizational and educational leadership is responsible for practices such as creating the foundations for the resourceful and ethical performance of the business. It is one of the most powerful and important aspects of human activities in organizations. Given that leaders are the most influential body in any institution greatly impacting the organizational culture, they are the ones who ought to promote and model principles and values in accordance to the objectives, mission, and vision shared with employees. Although ethos as a principle and value was first discussed in the ancient Greek philosophic circles, where it was characterizing the virtuous and moral beliefs, attitudes, and acts, the importance of the principle of ethical behavior had not been "apparent" until recent years that individuals and organizations have been researching to find ways that ethical behavior can be integrated into corporate practices. Moreover, ethics and the notion of ethical behavior and value systems in the organizational setting have become an organizational precedence in the 21st century. While leaders have numerous external factors, which present opportunities and threats, such as keeping up with the technology advancements, globalization's outcomes, threats of the competition, they also have to keep up with internal tasks and practices such as the alignment of mission, vision with the organizational culture, the strategies designed and the goals pursued for their own organization. Although the role of a leader is a complex and multifaceted one, he/she must also integrate ethical practices in their organizations' policies.

**Keywords:** Culture, ethics, leadership, organization

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<sup>i</sup> **Jenny E. Grigoropoulos**, Ed.D, Faculty American Community Schools of Athens, Greece

**Correspondence:** grigoropoulouj@acs.gr

## INTRODUCTION

Business ethics is a highly discussed and debated subject in today's corporate and business world, as well as in educational and academic circles (Brown, Trevino, & Harrison, 2005). In practice, it is the application of ethical values and morals to everyday business processes, behavior, and policies. Ethics is a practice that applies to everyone employed in the organization, regardless of position, level of responsibility, and range of responsibilities (Paliwal, 2006). As Peter F. Drucker (1981) states ethics is non-negotiable, there is one ethics. There are morality rules and ethical behavior code that applies to all people alike. Ethical behavior and undertakings relate to actions, which are characterized by "honesty, integrity, morality and good management practices" (Paliwal, 2006, p. 4), while earning profits for the business organization.

There are certain parameters, which influence the extensive level and degree to which ethics has been analyzed by scholars and researchers in recent years, such as globalization, technology, intangible assets, talent management (Eryaman, 2007; Frynas & Melahi, 2011; Noe, Hollenbeck, Gerhart, & Wright, 2014; Paliwal, 2006, Picciano, 2011). Furthermore, there are factors, which inhibit ethical intentions and behavior such as increasing competition; pressure for profits and return on investment; political corruption; values and morals not considered important by younger generations; the expectancy of fast money and profits; and disregard for social responsibility, honesty, and integrity (Brimmer 2007; Paliwal, 2006).

Meanwhile, organizations that are inclined in performing according to ethical standards, morals and values, have recognized the importance and significance that ethical procedures and policies are communicated and practiced throughout the entire organization, while at the same time becoming a priority for the administration of the organization (Brimmer, 2007). These standards must be modeled and practiced while having the commitment of the administration of the organization. Moreover, there must have been established a formal code of ethics outlining the policies, regulations, and expectations for all stakeholders. The code of ethics must be thoroughly communicated throughout the organization in formal and informal ways (written and oral communication) while making sure that there is provision for guidance and support in cases of dilemmas or insecurities. The organization ought to provide a thorough training program to prepare the employees for the policies, practices, and expectations in order to increase employee "ethical awareness" and to "define criteria for ethical decision-making within the organization" (Paliwal, 2006, p. 19).

Additionally, when designing ethical programs, it is necessary to assign the leading role for the ethical implementation throughout the organization to an ethics officer who will be undertaking the role of a guide towards ethical decision-making and practices. Moreover, the ethics officer will be encouraging accountability and ownership towards the ethical program throughout the organization. The ethics officer ought to design response and enforcement methodologies through the provision of rewards. At last, investigations and provision of consequences in cases of behaviors, which are in non-accordance to the ethical program, must be reinforced by the ethics officer, while evaluating the program when the need arises for reevaluation and redesigning of sections of the program (Paliwal, 2006).

Values are "what we choose as worthwhile or believe to have merit in a general or broad sense. Issues of right or wrong are related to one's values. So, values represent a specific mode of conduct or end state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence. Values are deep-seated ideas and feelings that manifest themselves as behavior or conduct these values. The true reflection of one's values is his/her action" (Paliwal, 2006, p. 23). Values are unwavering and enduring. They represent the foundations of a person's character. Moreover, they are the abstract version of what people believe to be right. They guide what actions are proper and meaningful for individuals to pursue. Also, values have intensity which explains how important they are. When an individual experiences his/her values becoming internal, they also become part of his/her character. Moreover, his/her actions become impulsive and constant and intuitive (Hannah, Schaubroeck, & Peng, 2016). The family, the school and the

educational systems he/she attends, recreational activities he/she attends, religion, society and community residing in, form values.

From the analysis of values and ethics above, their significance cannot be overstated. Meanwhile, the implementation of ethical practices and programs in the corporate environment can be challenging. All functions must be included in the design process and policies must be applicable to all employees, with respect to people being hired, fired, as well as respect for and employee privacy. Furthermore, besides the responsibilities that the organization has towards its employees, it is of utmost importance that the employees support their organization, are trustworthy and loyal. In addition to the employees and the administration, there are internal and external stakeholders who affect and are affected by the organization; thus, they must be considered regarding their interests and welfares when designing the ethics program's policies, and practices (Paliwal, 2006).

Leadership is responsible for practices such as creating the foundations for the resourceful and ethical performance of the business. It is one of the most powerful and important aspects of human activities in organizations. Companies invest tremendous amounts of funds on training effective leaders given that the long term survival as well as growth of organizations starts with ethical leadership. It is common knowledge that integrating ethics into organizations needs true leaders promoting the organization's ethical mission, vision, goals, and objectives. The ethical leaders ought to continuously assess their follower's needs and expectations, motivate them and direct them, in an effort to reach and materialize the shared mission and vision (Brimmer, 2007). Ethical leaders are the key to communicate organization's values and beliefs. To take the organizations on excellence path, a blend of strategy and culture is required which effective leadership can achieve. Strategic thinking and cultural building can be built up by leader's moral principles and integrity. Leadership makes real difference between success and failure." (Hoch, Bommer, Dulebohn, H., & Wu, 2018)

### **Why is the principle of ethics necessary and significant?**

The importance of the principle of ethical behavior had not been "apparent" until recent years that individuals and organizations have been researching to find ways that ethical behavior can be integrated into corporate practices. Internal and external stakeholders have been pressuring organizations to support ethical practices within and throughout their organizations in order for the latter to be promoting procedures and practices aiming towards common good and benefit (Eryaman, 2008; Child, 2015; Trevino, Weaver, & Reynolds, 2006).

Ethics and the notion of ethical behavior and value systems in the organizational setting have become an organizational precedence in the 21<sup>st</sup> century. Ethos was first discussed in the ancient Greek philosophic circles, where it was a principle characterizing the virtuous and moral beliefs, attitudes, and acts (Sulmasy, 2013). Ethics are "neither a luxury nor an option. Business ethics is a set of principles that guides business practices to reflect a concern for society as a whole while pursuing profits" (Brimmer, 2007, p. 12).

Ethics as a practice does not merely affect the organizational decision-making but consequently the organizational culture overall. "To achieve this ideal, there must be an alignment process that integrates business ethics with mission, vision, strategies and goals" (Brimmer, 2007, p. 3). Ethical principles have bedrock on social values; thus the alignment will be relevant to relationships while interpersonal anticipations are defined. The outcome, which is an ethical organization, is the utmost gratifying one. Internal and external relationships are built and enhanced. Therefore, all parties involved directly or indirectly are "treated well consistently and an ethical culture emerges. A great opportunity awaits organizations alert to the potential of ethical" practices integrated in the everyday business operations (Brimmer, 2007, p. 3). These notions place Corporate Social Responsibility (CSR) at the very essence of leadership and management providing for the welfare of employees, while ensuring that all stakeholders benefit from the corporate practices (Child, 2015).

### **What happens when ethics is not implemented**

Designing and implementing ethical programs in today's corporate and business world can be challenging, especially given the degree of corruption in society and loose values and principles governing the intentions and actions of people regardless of position and responsibilities. Furthermore, the extensive number of scandals and lawsuits surfaced has prompted some multi-level and multi-discipline research (Ferrell, 2016). There has been research providing insight about what promotes and dictates unethical behaviors, such as personal backgrounds and character traits, tendencies to act upon hidden agendas, low level of job satisfaction, demographics and gender. These tendencies govern the decision-making process; the younger and the less educated the individual is, the higher the likelihood to make wrong or poor choices (Bolman & Deal, 2017). Unethical practices focus on the egoistic personality characteristics, promoting "an everyone for himself" atmosphere. Furthermore, research has proven that there are cases in which unethical choices, behaviors and actions are the products and outcomes of deliberate and "impulsive automatic pathways" thus showing that they cannot be anticipated and therefore premeditated for" (Kish-Gephart, Harrison, & Treviño, 2010, p. 21).

On the contrary, when the organizational environment supports its employees and guides them to be attentive towards the welfare of all stakeholders, whether internal or external, all parties involved benefit. Employees and administration, together, work towards common goals and objectives, being guided by the shared mission and vision. Additionally, community is appreciative of the caring climate encouraged by the organization, as well as the intentions and supporting actions demonstrated the organizations by being loyal customers therefore improving organizational performance, and therefore, success and longevity (Kish-Gephart, Harrison, & Treviño, 2010).

### **When leadership faces moral and ethical dilemmas**

It is often the case that administrations face situations, which are not clearly ethical or unethical. People are used to state that an issue faced is either right or wrong. However, as "a slogan on an ethics poster for Boeing states, 'between right and wrong is a troublesome gray area'" (Leadership: Facing Moral and Ethical Dilemmas, 2017, p. 2). Situations such as loss of trust, growing inequality, avoidance to work for the impersonal environment of a corporation, put strain on the day-to-day operations of an organization (Child, 2015).

Leaders are the most influential body in any institution greatly impacting the organizational culture, promoting principles and values in accordance to the objectives, mission and vision shared with employees (Senge, 2006). Although there are circumstances that leaders find as challenging to make meaningful and purposeful decisions for the common good, there are guidelines that can be followed as long as their intention is to perform and carry out activities and processes towards the common and collective benefit.

Leaders have the moral obligation to create an environment in their organizations where employees experience security, integrity and trust. When employees feel safe and appreciated they accomplish to their potential. This is a contagious and works in a ripple effect connecting the entire organization in a process that goes beyond materialistic compensations. The objective is to engage all stakeholders to operate in such a way that they accomplish "stated goals and do so in a manner that is consistent with the higher values of the organizational community" (Leadership: Facing Moral and Ethical Dilemmas, 2017, p. 3).

### **Making ethical decisions**

Regarding ethics, the literature and research conducted by scholars at mentioned above is extensive. However, there is also extensive debate on whether ethical behavior is innate or can be learned. Although goodwill, values, and principles are cultured and nurtured, there are processes and

guidelines with clearly designed steps aligned with the organization's responsibilities and commitments, which can guide institutions through the decision-making process. Furthermore, there are theories and approaches that can "guide ethical decision-making" (Making Ethical Decisions, 2017, para.13).

The theories include the utilitarian approach, the rights approach, the common good approach, and the virtue approach. The utilitarian approach dictates that when there is an overlap of ethical actions that can be undertaken, the primary choice should be the one that will be the most beneficial and least harmful to the greatest number of individuals involved. The rights approach evaluates the level and degree of rights that the parties involved have over a decision and who has the most influential right over the others. The community good approach advocates that the community and its benefits should be directed towards the community in its entirety. The virtue approach targets towards the virtues and "desirable qualities" of the individual undertaking the action and how he/she can reach his/her maximum potential. It is important for scholars, researchers, and professionals evaluating and contemplating on these approaches to take into account that each one has its strengths and weaknesses. In the evaluation process, one must consider the fact that not everyone will agree on what is harmful and what is a beneficial; people from different places and backgrounds share different principles, rights and values; it is not necessary that everyone will agree on the same set of common goods and benefits. Therefore, it is necessary and important that when evaluating the most applicable approach to take into account the circumstances and the situation applicable to (Making Ethical Decisions, 2017).

### **Implementing an ethical culture in the organization through ethical leadership development**

#### **What types of culture promote ethics**

"We need leaders who lead with purpose, values, and integrity; leaders who build enduring organizations, motivate their employees to provide superior customer service, and create long-term value for shareholders" (Avolio & Gardner, 2005, p. 316). Given the turbulent times that the business and corporate world faces in the 21<sup>st</sup> century, it is important that the loss of trust in leadership is restored, while the "organization's values of justice fairness, and equity" are deeply integrated, while confidence, pride, trust, hope and optimism are enhanced (Leadership: Facing Moral and Ethical Dilemmas, 2017, p. 3).

The most important business responsibility of the corporate world is to create, install, and nurture business cultures, which are based on values and principles. This can be accomplished by taking into account four essential elements. First, leadership must instill "shared core values, such as honesty, respect, responsibility, fairness, and compassion" (Brimmer, 2007, p. 4) which must be the ones driving decision-making within the organization. Second, the organization ought to have a common and shared language that all employees understand and feel comfortable to discuss even sensitive or challenging issues. This language is the language of ethics, which must be deeply integrated in the organization's infrastructure. Third, leadership commitment for the efficient, effective, and purposeful delivery of the ethical program, while rewarding the individuals who abide by the ethical policies, makes the program stronger while the ethical culture is deeply installed. Fourth, facing up to the challenges that may surface, in confidence that procedures and policies are carried out to satisfy the common benefit of the stakeholders and the organization, while neither leadership nor employees feel intimidated or stressed by the challenge or options available for decision-making to be achieved (Brimmer, 2007).

#### **Modeling Ethical Behaviors Start with Leadership**

Leaders have the intrinsic responsibility to promote ethical behaviors by demonstrating them. Some of the core characteristics of leadership as mentioned earlier, are integrity, moral behavior,

honesty, trustworthiness, consistency, “courage in adversity, and wholeness” while ethical leadership is defined as “the demonstration of normatively appropriate conduct through personal actions and interpersonal relationships, and the promotion of such conduct to followers through two-way communication, reinforcement, and decision-making” (Brown, Trevino, & Harrison, 2005, p.120).

Leaders who set the groundwork for ethical organizations promote employee engagement, while making balanced decisions on fair grounds. Employees adjust to the path set by the administration gaining confidence, pride, self-esteem and self-worth, while they model such behaviors to their colleagues, other members of the organization and community, promoting satisfaction, loyalty to the organization, and acknowledgement, towards the leadership and its behavior. Meanwhile, negative or unethical behaviors are either belittled or vanish promoting value systems that are enriched with ethics and moral principles (Avey, Palanski, & Walumbwa, 2010; Piccolo, Greenbaum, Den Hartog, & Folger, 2010). Ethical leaders empower their followers by power sharing and increase their accountability. Employees are involved in the daily tasks necessary for the fulfillment of the mission and vision of the organization, which are shared across the organization. Leaders in successful companies witness the effect that spreading accountability and discipline by modeling them has on the employees. The latter are encouraged to be effective and trustworthy, while eliminating inefficient behaviors. Once the culture of accountability is embedded in the organization and becomes an irreplaceable part of everyday work and performance, the whole organization in alignment with the objectives set and the goals aimed at (Rogers & Meehan, 2007).

Thus, the ethical leader should act as the role model, scaffolding behaviors designing behaviors while the process and mentality becomes embedded in the corporate DNA. Although it is most efficient to begin the organization implanting accountability throughout all levels and disciplines, it can be a function or element integrated after the initiation of the institution. Ethical behaviors enhanced by accountability need to be enriched with trust and purpose in order to build on performance. If these elements are absent even great ideas cannot be executed as successful as their potential was. (Chassin, Loeb, Schmaltz, & Wachter, 2010).

### **Linking Ethical Leadership to Employee Performance**

As stated above, Piccolo et al. (2010) discovered through their research that ethical leadership increases “task significance” which in return improves performance (Piccolo, Greenbaum, Den Hartog, & Folger, 2010). It promotes performance as well as, the potential of employees; in other words using their talents it improves personal and organizational performance. Engaging in ethical leadership the administration can make significant difference to the organization’s current and future outcomes by achieving high performance and success (Ashton & Morton, 2005).

Ethical leadership promotes the transparency of the organization’s business philosophy and the communication of company’s practices, principles, and values (Effron, 2017). The continual purposeful interactions between management and employees are important in the promotion of ethical tactics, while aiming to increase engagement. (Mougalian, 2016). The promotion of organizational culture, targets to increase engagement leading to productivity, innovation, performance, profitability, and thus customer satisfaction guiding the institutions towards organizational success (Ashton & Morton, 2005).

### **Ethical Leadership Gains Grounds outside the Corporate Walls**

The role of the ethical leader is not constrained within the territories of an organization. More and more businesses and corporations undertake social responsibilities promoting values and principles to the community and society, as a whole. As nations have a declining capacity to regulate business practices, private companies undertake the role of regulation and policy implementation. Furthermore, globalization as well as social changes and challenges, have given the organization of the 21<sup>st</sup> century an additional role: a political role. The increasing speed of global changes, technology,

and the rise of significance of the business in the political and social context, increases the necessity of ethical leadership (Scherer & Palazzo, 2011).

These changes presuppose that a culture of integrity and respect has been cultivated in the organizations promoting ethical procedures and policies towards the increased need for corporate responsibility. Globalization and mass immigration of populations includes movement of people to new lands. In order for them to feel safe while useful and productive, they must be respected and empowered to engage in professional activities. Given these changes, ethical leaders are called upon to design activities and training procedures to embrace these people and incorporate them in their organizations. Meanwhile, their idiosyncrasies must be taken into account when policies and practices are designed. However, administrations should be “getting the best out of people” instead of “getting the most out of them” (Child, 2015, p. 187).

## CONCLUSION

This document is an attempt to connect research studies and scholarly articles to recognize and identify the role of ethics in contemporary business organizations. The outcome of this study is that ethics is “a priority” (Brimmer, 2007, p. 2). While leaders have numerous external factors, which present opportunities and threats, such as keeping up with the technology advancements, globalization’s outcomes, threats of the competition, they also have to keep up with internal tasks and practices such as the alignment of mission, vision with the organizational culture, the strategies designed and the goals pursued for their own organization. Although the role of a leader is a complex and multifaceted one, he/she must also integrate ethical practices in their organizations’ policies (Brimmer, 2007; Leadership: Facing Moral and Ethical Dilemmas, 2017).

People around the globe seem to be losing trust in business and politics. The increased publicized corruption and the continuous downfall of principles and values have given rise to the urgent need for ethics to be integrated in corporate practice. Meanwhile, ethics deals with the development of corporate character where individuals employed and communities in which the organizations function, may flourish (Avey, Wernsing, & Palanski, 2012). More and more business organizations identify this need and institutionalize ethical values. Through this process, all stakeholders benefit. Employees have the sense of pride and belonging because they are satisfied to be working for an ethical organization, the community is positive because an ethical organization is one that provides to its community, and the organization because satisfied and motivated employees are efficient and productive while a gratified and fulfilled community is comprised of loyal consumers (Brimmer, 2007).

“The powerful economic, political social and cultural forces at play” lead individuals and organizations to “weigh their alternatives and make choices in light of personal values and goals, but also with consideration to organizational and professional success” (Leadership: Facing Moral and Ethical Dilemmas, 2017, p. 3). Meanwhile, it is important to observe the culture and social environment in the community, and align them with the corporate culture. This will provide information, which is not readily available or accessible that may guide the organization on how to design strategic plans incorporating ethical policies and procedures (Bolser, 2012). Furthermore, it is significant for organizations to devote time and energy in the development of leaders with ethos, integrity, honesty in order for tomorrow’s corporate world to be less corrupt and more compassionate and ethical. Organizations able to “survive and compete in the ever-changing marketplace will be those that have proactively and strategically prepared themselves for future challenges through effective leadership development programs, practices, and systems” (Leskiw, & Singh, 2007, p. 460).

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