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## **An Investigation of Pre-Service Social Studies Teachers' Metaphorical Perceptions Towards the Concept of Artificial Intelligence**

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### **Abstract**

The aim of this study is to determine the perceptions of pre-service social studies teachers towards the concept of artificial intelligence through metaphors. The research was conducted with phenomenology design, one of the qualitative research methods. The participants of this study consists of first, second, third, and fourth grade pre-service social studies teachers studying at the faculty of education of a state university in Ankara. The data obtained were analyzed by content analysis method. The results showed that the most common metaphor categories produced by the participants were Help Mechanism, Serving to Purpose, Complexity, Infinity, and Damaging. On the other hand, the metaphor categories produced in common at all grade levels from the first grade to the fourth grade were Help Mechanism, Serving to Purpose and Harmful. In this study, it was found that the participants generally had positive images towards the concept of artificial intelligence. It was also determined that pre-service social studies teachers had various concerns about the concept of artificial intelligence, albeit in small numbers. According to the findings, it is recommended to conduct more extensive and comprehensive research on the concept of artificial intelligence. In addition, it was also suggested that the factors that negatively affect the perceptions of pre-service social studies teachers towards the concept of artificial intelligence should be studied through qualitative research.

**Keywords:** Social Studies, Artificial Intelligence, Qualitative Research, Metaphor.

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## INTRODUCTION

How the human brain works has been a subject of curiosity since the early ages. Efforts have been made to build a machine similar to the human brain (Pirim, 2006). Human beings, who met the power of steam with the Industrial Revolution, focused on “training machines” in the 1950s. Machine-centered production systems have been replaced by automation-centered production over time. With the invention of the computer, people dreamed of producing an artificial brain and advanced their work towards this goal. As a result of these studies, albeit primitive, the first examples of artificial intelligence (AI) were reached (Öztemel, 2020). It can be said that the term AI was developed based on the concept of machine learning. The AI term was first used by John McCarthy in 1956 at the “Dartmouth Conference” (Nilsson, 2019). McCarthy defined AI as “the calculable aspect of the world's capacity to achieve its goals” (as cited in Arslan, 2020, p. 76). In another definition, AI can be defined as “a set of mechanisms that reason, decide, problem solve, direct, associate, and communicate in line with the commands given by individuals” (Güzey et al., 2023, p. 70).

With the digital transformation in the world, AI has become widespread in almost every field (Adaş & Erbay, 2022). Health, agriculture, animal husbandry, data processing and education are just a few of these fields (Altun et al., 2023). Today, AI communicates with students, analyzes their needs, and meets their needs to a great extent (Chen et al., 2020). AI in education acts in line with the principle of “student relativity” and diversifies teaching by providing individualized teaching. It provides benefits for teachers as well as students, facilitates time-saving, automatic grading, and acts as a teaching assistant, making the teacher's work easier (Zhang et al., 2023, p. 3-4).

### **Social Studies Education and Artificial Intelligence**

As an important course, social studies directly related to daily life and change processes. Today, the use of AI in social studies courses can provide students with personalized, efficient and effective learning experiences. AI technologies and applications that can be used in social studies education allow students to create learning methods and plans appropriate to their personal levels and learning styles (İncemen & Öztürk, 2024, p.30). In this way, projects can be developed or individualized programs can be implemented by taking into account students' readiness levels.

To give examples of AI applications that teachers can use in the context of social studies education (Türker, 2023, p.197-200): “Lessonplans.ai” is an AI-supported lesson plan creation tool and was developed by teachers. “Gradescope” is an AI-supported grading, homework evaluation and alternative solutions to questions for higher education educators (Middle East Technical University, 2023). “Juji” is an AI-supported cognitive learning assistant tool that is referred to as a ‘chatbot’. It is empowered with social skills specific to humans and acts as an individualized assistant (Türker, 2023). “ChatGPT” helps students in almost every field and stands out as a personal assistant in problem solving, decision making, and creating individual plans (Zhai, 2022). For the use of visual materials, applications such as “Midjourney” and “DALL-E” produce visuals using AI and diffusion technology. “Knewton” offers personalized learning materials by analyzing students' strengths and weaknesses, while ‘Timemaps’ offers enriched content by visualizing history and geography concepts in the social studies course. “Watsontutor” and ‘Autotutor’ are examples of dialog-based tutorial systems (Arslan, 2020).

Metaphors are “structures that can be used by everyone in daily life and can survive in social memory and help to define and describe thoughts and perceptions” (Demir & Karakaş-Yıldırım, 2019, p. 1087). Lakoff (1993, p.202) defines the concept of metaphor as “a novel or poetic linguistic expression where one or more words for a concept are used outside of its normal conventional meaning to express a similar concept.” The basis of metaphor theory is the attempt to explain the lesser-known field by utilizing the known field (Lakoff & Johnson, 1980). Metaphors can support meaningful learning by establishing connections between different concepts and situations in education and training processes. In addition, they can attract students' attention to the lesson with effective ways of expression.

Social studies is an important course for both today's and future citizens (Yetişensoy & Rapoport, 2023). In a period when AI technology has become widespread in all areas of life, how it is perceived and understood is of great importance. In this direction, metaphors about how AI is understood can shed light on how individuals mentally make sense of this technology (Balıkçı et al., 2024). On the other hand, it can also provide us with information about the professional development processes of the participant group (Ulusoy, 2022). When the literature is examined, studies addressing the concept of AI in social studies education are limited. Yeşiltaş and Sönmez (2014) theoretically mentioned computer-based instructional material development and the concept of AI in their book. Sarı (2022) examined digital teaching techniques and the use of AI in social studies teaching. Karakuş (2023) investigated the relationship between social studies education and AI. Yetişensoy and Rapoport (2023) conducted a study on social studies and AI literacy. Yeşilyurt et al. (2024) examined the views of social studies graduate students on the concept of AI. In the literature, to our knowledge, there is no study investigating the metaphorical perceptions of pre-service social studies teachers (PSSTs) towards the concept of AI.

This study was conducted to answer the question “How are the metaphorical perceptions of PSSTs towards the concept of AI?”. In line with this question, it is aimed to answer the following sub-questions:

- 1) What are the metaphorical perceptions of first-year PSSTs towards the concept of AI?
- 2) What are the metaphorical perceptions of second-year PSSTs towards the concept of AI?
- 3) What are the metaphorical perceptions of third-year PSSTs towards the concept of AI?
- 4) What are the metaphorical perceptions of fourth grade PSSTs towards the concept of AI?

## **METHOD**

### **Research Design**

In this qualitative study, phenomenology design was used. Phenomenology focuses on the experiences of people and how their experiences are shaped in consciousness. Phenomenological research “focuses on phenomena that we are aware of but do not have an in-depth and detailed understanding of” (Yıldırım & Şimşek, 2018, p. 26). According to Patton (2014), phenomenological research focuses on how people perceive, describe, feel, judge, remember, and make sense of phenomena and how they talk about it with other people. In this study, it was aimed to reveal how pre-service social studies teachers make sense of and perceive the concept of AI, which has become an integral part of daily life.

### **Participants**

The participants of this study consists of PSSTs studying at the faculty of education of a state university in Ankara in the 2024-2025 academic year. There are 155 participants in the study group at the first, second, third, and fourth grade levels. The participants were selected on a voluntary basis using convenience sampling. “Convenience sampling is a method that researchers prefer when they cannot use other sampling methods due to reasons such as cost, time limitation or transportation difficulties” (Yıldırım & Şimşek, 2018, p.123).

### **Data Collection Tool**

“AI Metaphor Form” created by the authors of this study was used to collect data. The metaphor form consists of two parts: The first part of the form includes the name and purpose of the study and the definition of the concept of metaphor. In the second part of the form, the necessary page

layout was given for the participants to create metaphors about the concept of AI. The sentence organized for the participants to create their metaphors is as follows:

“Artificial intelligence is like/similar ..... . Because.....”

### Data Collection

The data of the study were collected face-to-face on a voluntary basis. Firstly, the definition of the concept of metaphor was given to the PSSTs. Then, more than one example of metaphor other than the concept of AI was given. Then, the PSSTs were asked to fill in the “AI Metaphor Form” prepared for this study. The participants were given 15 minutes to fill out the form. These forms filled out by pre-service teachers constituted the data source of the study.

### Data Analysis

In this study, the data collected with the metaphor form were analyzed with the content analysis developed by Saban (2009 p. 286). The analysis and interpretation of the data were carried out in five stages:

*Metaphor Coding and Sorting Phase:* First, the data obtained in the study were classified according to the grade level. Afterwards, the forms that did not fit the definition of metaphor, had no justification, were left blank, or contained only the definition of the relevant concept were excluded from the analysis. Accordingly, 39 forms were excluded from the study on the grounds that they could not be considered metaphors. Examples from each grade level that cannot be considered metaphors are given in Table 1.

**Table 1. Examples of Metaphors Extracted from this Study According to Grade Levels**

Participant Class Level	Unaccepted Metaphor Examples
Undergraduate 1st grade level	“AI women are like Ankara. Because they are both managers.”
Undergraduate 2nd grade level	“AI is like a heart of burning stone. Because some people have hearts even harder than stone.”
Undergraduate 3rd grade level	“AI is like a monster with an evil heart. Because I don't like either of them.”
Undergraduate 4th grade level	“AI is like aliens. Because they both feel dangerous.”

When the examples of metaphors in Table 1 are examined, the reasons for unaccepted metaphors include factors such as the lack of a resemblance between the metaphor topics and the PSSTs’ responses and giving irrelevant examples.

*Metaphor Coding and Sorting Phase:* As a result of this stage, the metaphor forms of 28 participants at the first grade level, 38 participants at the second grade level, 26 participants at the third grade level and 24 participants at the fourth grade level were deemed suitable for analysis. The participant forms accepted as metaphors were categorized and coded according to the grade levels and the data were entered into an Excel document.

*Category Development Phase:* At this stage, categorization was made by looking at the justifications of the metaphors. Categories were entered next to the column with the codes in the Excel program. Thus, the category was placed next to each code. This stage was conducted separately for each grade level.

*Providing Validity and Reliability Phase:* Expert opinion was consulted to determine whether the metaphors obtained represented the determined categories. As a result of the criticisms made by the expert, Miles and Huberman's (1984, p. 64) formula (Number of agreements / Total number of agreements + Disagreements) was used to calculate the intercoder reliability. Accordingly, the percentage of agreement was 92%. In the literature, a percentage of agreement of 90% and above is accepted as a high level (Saban, 2009, p. 288).

*Transferring the Data to the Computer Environment:* After all the data were transferred to the computer, the number of metaphors and the number of participants representing the determined category (*f*) were calculated. Then, the data were tabulated and supported with direct quotations and presented in the findings section.

*Findings:* At this stage, the results are reported.

## FINDINGS

In this part of the study, the metaphorical perceptions of the PSSTs towards the concept of AI are listed according to their grade levels. The metaphorical perceptions of first-year PSSTs towards the concept of AI are presented in Table 2.

**Table 2. Findings regarding the first-year PSSTs’ metaphorical perceptions towards the concept of AI**

Category	Metaphor ( <i>f</i> )	Metaphor	Participants
1. Serving to Purpose	7	Empty Room	PST2.1
		King	PST27.1
		Atomic Bomb	PST28.1
		Love	PST10.1
		Delibal	PST13.1
		Sun	PST4.1
		Poison	PST1.1
2. Diligence	1	Ant	PST16.1
3. Moving Forward	2	Imagination	PST7.1
		Leg	PST11.1
4. Communicating	4	Child with Autism	PST18.1
		Human	PST21.1, PST6.1
		Imaginary Friend	PST22.1
5. Complexity	2	Nature	PST17.1
		Universe	PST3.1
6. Problem Solving	3	The Brain	PST9.1, PST19.1, PST25.1
		Play Dough	PST20.1
7. Designing	3	The Brain	PST8.1
		Silk	PST5.1
		Electric Vehicle	PST12.1
8. Assistance Mechanism	4	Psychologist	PST15.1
		Medicine	PST24.1
		Sun	PST26.1
		Poison	PST1.1
9. Harmful	2	Poison	PST1.1
		Black Hole	PST23.1

As seen in Table 2, the first year PSSTs created 28 metaphors about AI and these metaphors were grouped under nine categories. The categories with the highest number of metaphors are “Serving to Purpose” (*f*=7), “Communicating” (*f*=4) and “Assistance Mechanism” (*f*=4). Examples of the PSSTs’ metaphors for the concept of AI are presented below:

### **Serving to Purpose Category**

PST1.1. *“AI is like poison. Because it becomes useful under appropriate conditions and in the right hands. Otherwise, if the intended use is bad, it can lead to disaster.”*

PST2.1. *“AI is like an empty room. Because whatever you use it for, it serves that purpose, just like an empty room.”*

PST4.1. *“AI is like the sun. Because the sun is very important for us. It provides great benefit in terms of vitamin D. AI also provides great convenience. But just as we get burns when we stand in the sun too long, AI has negative aspects as well as positive aspects. It is necessary to use it as much as necessary. We need to know how to let go when we have achieved our goal.”*

PST28.1. *“AI is like an atomic bomb. Even if it is produced for useful purposes, it can have very dangerous consequences if misused.”*

### Communicating Category

PST18.1. *“AI is like a child with autism. Because when you understand its language and provide the right context, it will provide you with systematic and effective information. When the child with autism is given the right information, just like AI, it becomes a great source of knowledge and skills. (...) Therefore, it is essential to communicate with it correctly.”*

PST21.1. *“AI is like a human. Because it talks like a human. It listens to you and gives logical answers.”*

PST22.1. *“AI is like an imaginary friend. Because the AI in front of us is actually our product, we can talk to it and communicate with it.”*

### Assistance Mechanism Category

PST12.1. *“AI is like electric vehicles. Because both AI and electrical appliances came later and made our lives easier and helped us.”*

PST15.1. *“AI is like a psychologist. Because it is always with me, helping me, and taking care of my problems.”*

PST24.1. *“AI is like medicine. Because it saves you when you need help.”*

PST26.1. *“AI is like the sun. Because it plays a big and effective role in facilitating our daily lives. The sun also benefits us and energizes us with vitamin D. AI is useful like the sun.”*

Second-year PSSTs’ metaphorical perceptions regarding the concept of AI are presented in Table 3.

**Table 3. Findings regarding the second-year PSSTs’ metaphorical perceptions towards the concept of AI**

Category	Metaphor (f)	Metaphor	Participants
1. Serving to Purpose	7	Book	PST9.2, PST10.2
		Technological Age	PST16.2
		Assistant	PST17.2
		Glucose	PST30.2
		Cell Phone	PST36.2
		Tame Beast	PST40.2
		Relative	PST4.2, PST5.2
2. Pedantry	6	Digital Book	PST33.2
		Electronic Brain	PST34.2
		Computer	PST39.2
		Rasim Ozan Kütahyalı	PST8.2
3. Mysterious	3	Ocean	PST12.2
		Twilight	PST25.2
		Pandora's Box	PST26.2

4. Complexity	4	Intelligence Cube	PST20.2
		Knot	PST23.2
		Space Void	PST3.2
		Universe	PST7.2
5. Unpredictable	4	Politics	PST28.2
		Future	PST19.2
		Men	PST24.2
		Closed Box	PST21.2
6. Infinity	3	Space	PST29.2, ÖA37.2
		Gap	PST38.2
7. Designing	1	Play Dough	PST13.2
8. Assistance Mechanism	8	Close Friend	PST1.2, PST15.2
		Robot	PST11.2
		Robot Vacuum Cleaner	PST14.2
		Conscious human	PST18.2
		Entering the Sea	PST22.2
		The Brain	PST31.2
		Student	PST6.2
9. Harmful	2	Apocalypse	PST27.2
		Virus	PST32.2

When Table 3 is examined, it is seen that the second-year PSSTs created 38 metaphors and they were grouped under nine different categories. The categories with the highest number of metaphors are “Assistance Mechanism” ( $f=8$ ), “Serving to Purpose” ( $f=7$ ) and “Pedantry” ( $f=6$ ). Some of the examples of the PSSTs’ metaphors for the concept of AI are presented below:

#### **Assistance Mechanism Category**

PST1.2. *“AI is like a close friend. Because it does not withhold its support and help in every subject, it searches, finds and responds to everything when needed.”*

PST11.2. *“AI is like a robot vacuum cleaner. Because it helps us, it makes our lives easier.”*

PST14.2. *“AI is like a robot. Because like a robot, it does what we want and helps us.”*

PST15.2. *“AI is like a best friend. Because best friends can reveal your thoughts about yourself. They always support, help, and stand by you.”*

PST18.2. *“AI is like a conscious person. Because it helps us like a conscious human being.”*

PST31.2. *“AI is like the brain. Because it does things that humans cannot do and cannot reach. It helps and completes the human.”*

#### **Serving to Purpose Category**

PST9.2. *“AI is like a book. Because in a book, everyone learns information according to their own purpose. AI is like that. People learn the information they need from it.”*

PST10.2. *“AI is like a textbook. Because they both contain many subjects. Everyone chooses a subject for their goal and learns. Both provide information.”*

PST30.2. *“AI is like glucose. Because although glucose is necessary for energy in our body, if we take too much of it, it is harmful. We need to take as much as we need. AI is the same way. (...)”*

PST36.2. *“AI is like a cell phone. Because when we use AI for good things in our lives, the results will be good. If we use it for evil, it will have bad consequences. A cell phone is also useful if we use it for good. (...)”*

PST40.2. *“AI is like a docile monster. Because if it is used ethically where necessary, it is very docile and useful, but if it is used for dangerous purposes, it is a dangerous monster.”*

**Pedantry Category**

PST4.2. *“AI is like relatives. Because they have opinions about everything. So is AI.”*

PST33.2. *“AI is like an electronic brain. Because it knows things that the human brain cannot know, it knows everything and does it digitally.”*

PST34.2. *“AI is like a digital book. Because in the past, people used to use books to find answers to their questions. But today, people access all information through AI and ask their questions to it. AI has become an omniscient digital book.”*

The third year PSSTs’ perceptions towards the concept of AI are presented in Table 4.

**Table 4. Findings regarding the third-year PSSTs’ metaphorical perceptions towards the concept of AI**

Category	Metaphor ( <i>f</i> )	Metaphor	Participants
1. Serving to Purpose	4	Weapon	PST28.3
		Medicine	PST14.3
		Plastic	PST26.3
		Rain	PST9.3
2. Knowledge Transfer	4	Speed of Light	PST15.3
		Book	PST16.3
		Internet	PST27.3
		Encyclopedia	PST4.3
3. Developing	6	Seed	PST13.3
		Human	PST18.3
		Science Fiction Movie	PST23.3
		Marriage	PST29.3
		Rocket	PST10.3
		Ivy	PST24.3
4. Infinity	2	Space	PST25.3
		Road	PST3.3
5. Assistance Mechanism	9	Friend	PST1.3
		Sister	PST11.3
		Maid	PST17.3
		Robot	PST19.3
		Shoe Puller	PST2.3
		Car	PST5.3
		Money	PST6.3
		Mother	PST7.3
		Walnut	PST8.3
6. Harmful	1	The Virus	PST12.3

When Table 4 is examined, it is seen that third-year PSSTs created 26 metaphors about the concept of AI and these metaphors were grouped under six different categories. The categories with the highest number of codes are “Assistance Mechanism” (*f*=9), “Developing” (*f*=6), “Serving to Purpose” (*f*=4), and “Transferring Knowledge” (*f*=4). Some of the metaphors in these categories are given below:

**Assistance Mechanism Category**

PST1.3. *“AI is like a friend. Because it is with you when you need it, it runs to help you.”*

PST5.3. *“AI is like a car. Because it helps make our lives easier.”*

PST7.3. *“AI is like a mother. Because it answers our questions and helps us with things we don't want to do, can't do or don't know.”*

PST11.3. *“AI is like a big sister. Because it helps you with your homework and is always there for you when you get stuck.”*

PST17.3. *“AI is like a servant. Because it does everything we want it to do for us, it helps and serves people.”*

**Knowledge Transfer Category**

PST4.3. *“AI is like encyclopedias. Because encyclopedias have a lot of information. So is AI. They inform us (...)”*

PST16.3. *“AI is like a book. Because we can find the information we want in it.”*

PST27.3. *“AI is like the internet. Because you can find things quickly.”*

**Developing Category**

PST13.3. *“AI is like a seed. Because seeds always grow and develop from the moment they are first planted. AI also continues its development from the moment it emerged.”*

PST18.3. *“AI is like a human being. Because just like a human being, it will develop over time, and reach a certain maturity.”*

PST23.3. *“AI is like science fiction movies. Because both are constantly evolving and renewing.”*

PST29.3. *“AI is like marriage. Because both are difficult to understand at first. As you develop and understand, they become enjoyable.”*

Fourth-year PSSTs’ metaphorical perceptions regarding the concept of AI are presented in Table 5.

**Table 5. Findings regarding the fourth-year PSSTs’ metaphorical perceptions towards the concept of AI**

Category	Metaphor (f)	Metaphor	Participants
1. Serving to Purpose	2	Octopus	PST18.4
		Mushroom	PST19.4
2. Dependent	1	Rotring Pen	PST6.4
3. Developing	1	Human Body	PST26.4
4. No Feelings	1	Tasteless Food	PST13.4
5. Complexity	2	The Brain	PST8.4, PST14.4
6. Infinity	3	Ocean	PST16.4, PST23.4
		Endless Page Book	PST15.4

		Psychologist	PST10.4
		Sun	PST11.4
		Washing Machine	PST17.4
		Super Hero	PST2.4
		Remote Control	PST20.4
		Maid	PST22.4
7. Assistance Mechanism	13	Automatic Gear Car	PST24.4
		Teacher	PST25.4
		Octopus	PST3.4
		Lifeguard	PST4.4
		Kettle	PST5.4
		Speed of Light	PST7.4
		Book	PST9.4
8. Harmful	1	Silence Before the Apocalypse	PST1.4

When Table 5 is examined, it is seen that fourth-year PSSTs created 24 different metaphors about the concept of AI and these metaphors were grouped under eight categories. The categories with the highest frequencies are “Assistance Mechanism” ( $f=13$ ) and “Infinity” ( $f=3$ ). Some of the examples of the PSSTs’ metaphors for the concept of AI are presented below:

#### **Assistance Mechanism Category**

PST2.4. *“AI is like a superhero. Because it helps and saves us when we need it.”*

PST3.4. *“AI is like an octopus. Because it has so many arms, whatever we ask, it immediately runs to help. It reaches everything like an octopus.”*

PST4.4. *“AI is like a lifesaver. Because it helps us every time we get stuck.”*

PST9.4. *“AI is like a book. Because it helps us with its knowledge, it tells or writes everything.”*

PST10.4. *“AI like a psychologist. Because I share my problems with it and get supportive answers.”*

PST17.4. *“AI is like a washing machine. Because we do laundry even when there is no washing machine. With a washing machine, we don't get tired and our work is done quickly. AI is also like that, things get done even when it is not there, but its presence helps us a lot and provides convenience.”*

PST25.4. *“AI is like a teacher. Because it helps us and teaches us what we don't know.”*

#### **Infinity Category**

PST15.4. *“AI is like a book with endless pages. Because it is like the sum total of all the books in the world. It is like a huge book that covers all the topics in the world (...)”*

PST16.4. *“AI is like the ocean. Because all kinds of information can be accessed. It is endless, endless.”*

PST23.4. *“AI is like the ocean. Because it is vast like an infinite space.”*

#### **No Feelings Category**

PST13.4. *“AI is like a tasteless meal. Because it can never feel what a human feels, and it cannot replace it.”*

## CONCLUSION AND DISCUSSION

This study, which aims to determine how the concept of AI appears in the perceptions of the PSSTs, was completed with 155 participants. As a result of the analysis of the metaphors developed by the PSSTs, 116 metaphors accepted as valid were categorized. According to the results of the analysis, Assistance Mechanism ( $f=34$ ), Serving to Purpose ( $f=20$ ), Complexity ( $f=8$ ), Infinity ( $f=8$ ) and Harmful ( $f=6$ ) were the most frequently produced metaphors by the participants. On the other hand, the metaphor categories produced in common at all grade levels from first to fourth grade were Assistance Mechanism ( $f=34$ ), Serving to Purpose ( $f=20$ ), and Harmful ( $f=6$ ).

When the metaphors produced by the PSSTs under the category of 'Assistance Mechanism' were examined, it was found that metaphors were produced with different concepts such as 'electric vehicle, psychologist, medicine, sun, friend, robot, robot vacuum cleaner, conscious person, going to the sea, brain, student, sister, maid, shoehorn, car, money, mother, walnut, washing machine, superhero, remote control, automatic gear car, teacher, octopus, lifeguard, kettle, speed of light and book'. In these metaphors, it is seen that the concept of AI emphasizes the features of making human life easier and helping when needed. A review of the literature revealed that similar findings were found in previous studies conducted in different fields. Erdoğan and Bozkurt (2023) examined pre-service physics teachers' perceptions of AI and found that pre-service physics teachers similarly evaluated AI in the category of helping people. In the study completed by Mart and Kaya (2024), it was determined that preservice preschool teachers associated the concept of AI with concepts such as technology and convenience. In the study conducted by Yeşilyurt et al. (2024), the concept of AI was explained by the participants with the category of facilitating human life. It can be said that the findings we obtained in the study are compatible with previous studies (Erdoğan & Bozkurt, 2023; Mart & Kaya, 2024; Yeşilyurt et al., 2024). In the study completed by Gündüz-Hoşgör et al. (2023), it was determined that health studies explained the concept of AI by associating it with diseases.

When the metaphors created by the PSSTs under the category of 'Serving to Purpose' were examined, it was found that metaphors were produced with different concepts such as 'empty room, king, atomic bomb, sun, poison, glucose, weapon, mushroom, love, medicine, plastic'. In these metaphors, pre-service teachers emphasized the purpose and dose of the concept of AI. According to the mental images of the PSSTs, the purpose of using AI is effective in characterizing it as good or bad.

When the metaphors produced by the PSSTs for the "Complex" category are examined, it is seen that they used the concepts of "nature, universe, intelligence cube, knot, space cavity and brain". In these metaphor images, it was seen that the participants emphasized that the concept of AI has a complicated system and is difficult to understand. When the metaphors produced by the PSSTs for the category of "Infinity" are examined, it is seen that they used the concepts of "space, void, road, ocean and endless page book". In these metaphor images, it was determined that the participants emphasized that the concept of AI fulfills a large number and variety of tasks unlimitedly. In the study conducted by Erdoğan and Bozkurt (2023) with prospective physics teachers, it was found that the concept of AI was explained with the category of infinity.

When the metaphors created by the PSSTs for the category of "Harmful" are examined, it is seen that they used the concepts of "poison, black hole, apocalypse, virus and silence before the apocalypse". In these metaphor images, it was determined that the participants emphasized that the concept of AI poses a security threat, is difficult to control, and is open to the production of false information. Similarly, in the study completed by Demir-Dülger and Köklü (2023), it was determined that teachers and administrators had concerns about AI in terms of security and ethical violations. Köken and Balaban-Dağal (2024) found that mothers had various concerns about AI. Avcı and Günay (2024) examined the attitudes of PSSTs towards AI and found that while most of the participants saw AI applications useful, they had some concerns about ethical concerns and harming humanity. It can be said that PSSTs' concerns about the concept of AI are similar to the findings of previous studies in the literature. Öcal et al. (2020) examined the views of medical faculty students on the concept of AI.

Accordingly, it was determined that most of the students' concerns about AI were gathered under the title of labor force. In our research, it was found that the PSSTs did not have any concerns about the workforce in their perceptions.

One of the important findings of this study is that the concept of AI is generally perceived positively in the mental images of pre-service teachers. It can be said that the metaphors produced in the categories of Diligence, Moving Forward, Problem Solving, Designing, Help Mechanism, Knowledge Transfer, Developing are in this direction. In other words, approximately 65% of the metaphors produced by the participants were directly produced with positive image expressions. When the literature was reviewed, similar findings were found in previous studies. Demir-Dülger and Gümüşeli (2023) found that teachers and school principals generally had positive views on AI. Balıkçı et al. (2024) aimed to determine the perceptions of teachers towards the concept of AI with metaphors. According to the results of the research, AI facilitates the work of teachers. Salur (2023) determined the perceptions of pre-service social studies teachers about the concept of digitalization with metaphors. In the study, it was determined that pre-service teachers emphasized that digitalization makes life easier and guides people.

Another important finding obtained in the research is that the concept of AI has a negative position in the mental images of some pre-service teachers. It can be said that the metaphors produced especially in the categories of Complexity, Harmful, Pedantic, Mysterious, Unpredictable, Dependent, Deprived of Feelings are in this direction. In terms of negative perception, the participants who continue their education in the second grade produced the most metaphors ( $f=19$ ). The least number of metaphors in terms of negative perception was produced by the participants in the third grade ( $f=1$ ). Yeşilyurt et al. (2024) conducted a study with social studies graduate students and found that the participants had both positive and negative perceptions towards the concept of AI. In the aforementioned study, it was determined that ethical violations and privacy issues came first among the concerns of graduate students. Participants also mentioned that AI could pose threats to the labor force potential and be open to manipulation. Similarly, there are studies in the literature where participants have both positive and negative perceptions towards AI (Balıkçı et al., 2024; Çam et al., 2021; Çetin & Aktaş, 2021; Erdoğan & Bozkurt, 2023).

In this study, it was also determined that metaphors in different categories were explained with the same concepts in the mental images of pre-service teachers. For example, the concepts of sun and medicine were used in metaphors representing both the categories of Serving to Purpose and Help Mechanism. Again, the concept of human was used in metaphors representing both the Communication and Developing categories. The concept of brain was used in the categories of Designing, Problem Solving, Complexity and Help Mechanism. Likewise, the concept of poison was used both in the category of Serving to Purpose with its feature of use in dosage and in the category of Harming because of its feature of harming.

The results of this study showed that the PSSTs have a positive perception in their mental images of the concept of AI. According to the findings obtained from the study, the following suggestions can be made:

- This study was completed with the participation of 155 pre-service teachers. There is a need for more extensive and comprehensive research on the concept of AI.
- The factors affecting the PSSTs' perceptions regarding the concept of AI can be investigated through qualitative research. Especially, the reasons why the PSSTs produce negative metaphors can be investigated in future studies.
- In addition, the PSSTs' perceptions of AI tools can be investigated in more detail through longitudinal studies.

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## **A Comparative Study of Parent Engagement in Homework: The Case of Private and Government Secondary Schools in Addis Ababa**

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### **Abstract**

This study examined parent engagement with their children's homework in public and private secondary schools in the city of Addis Ababa. Through a qualitative case study approach, the researchers interviewed a total of 30 participants: 12 teachers, 12 parents, and six school leaders. Member checking and peer review were conducted within the research team to ensure validity and reliability, and the findings were then summarized by theme. Overall, the study highlights the complex relationships between school type, socioeconomic status, parental academic support, and supportive environments. The findings suggest that parental engagement is significantly higher in private schools, where well-educated and affluent parents are more likely to be involved in their children's homework. In contrast, public schools, which serve predominantly low-income families, struggle with parental involvement, citing communication and socioeconomic barriers. Notably, the study highlights the varying strategies employed by schools to promote parental involvement, with private schools focusing on incentives and extracurricular activities and public schools offering tutoring services. While both school types emphasize a positive learning environment, the approach to homework and parental involvement differs significantly. The study's results underscore the need for schools to adopt context-specific strategies that cater to the diverse needs of their student populations, taking into account socioeconomic factors, parental academic support, and creating a conducive homework environment. By doing so, schools can foster a more inclusive and supportive environment that promotes parental engagement in homework and, ultimately, improves student academic outcomes.

**Keywords:** Homework, Parental Involvement, Private, And Public Secondary Schools.

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## INTRODUCTION

### Origin and Development of Homework

In the nineteenth century, Horace Mann, a German politician, had a significant impact on homework. But in the twenty century, Robert Neviris presented it as a discipline. Before homework became common around the world (Bembenutty 2010), its educational value had been under debate in the early twenty-first century, especially in the United States. Meanwhile, according to Cooper's (1989) study, excessive homework was criticized. On the contrary, Sullivan and Sequiria (1996) support the benefits of homework, and in a competitive global environment, there is growing interest in using homework to improve student achievement (Anderson, 1986). Meanwhile, in this area, Cooper (1989) defined homework as a job, apart from class hours.

Historically, parental involvement in their children's homework was not common. Nevertheless, to address these issues, the twentieth century, especially the 1960s, saw the implementation of homework as a means to equip children from disadvantaged socioeconomic backgrounds and racial or ethnic minority groups for academic environments, with the goal of reducing potential disadvantages (Brooks-Gun et al., 2000). In addition, Grolnick and Slowaraczek (1994) proposed two theories about the participation of parents. This is an indirect impact, contributing to the motivation, attitude, and direct value of academic skills.

Presently, children in Ethiopia have homework, but they are generally less engaged, interested, and motivated in their studies, leading to low attendance rates. In addition, according to a document from the Ethiopian Ministry of Education (2018), if the educational system does not motivate students, they will be disinterested in learning and developing skills. Furthermore, this leads students to complete only the minimum tasks required for assessment outside of class, which promotes a passive attitude in class, as noted by Battin-Pearson et al. (2000).

Hence, the study aimed to compare parent engagement in homework between private and government secondary schools in Addis Ababa. Reasons for parent involvement included personal interest, professional experience, and gaps in the literature. Also, differences in national test scores, levels of parental involvement, and socioeconomic influences on homework completion have been noted across school types. The research focused on parental involvement in educational activities, creating a conducive homework environment, and how socioeconomic status affects children's academic performance in homework.

## LITERATURE REVIEW

### Theoretical Perspectives

Although different schools of thought were once dominant, by the 1960s parental involvement in homework was recognized as important to children's academic progress, and various studies have shown that children from different socio-economic backgrounds can benefit from homework for their children (Books-Gun et al., 2000). For instance, Epstein's six models provided educators with a roadmap for improving student outcomes by fostering positive relationships between schools and parents. Despite historical skepticism about the educational value of homework, attitudes have changed over time (Gill and Schlossman, 2004). Although concerns about student well-being and stress persist, most parents continue to support homework (Kralovec and Buell, 2000). Besides, as suggested by Toney et al. (2003), teachers were encouraged to assist parents in helping their children with their homework, emphasize the importance of completing homework, and provide positive feedback to improve students' performance. Research has found that there are certain factors that promote effective parental involvement in homework, including: among other things, homework regulation helps children develop skills, attitudes, and behaviors and promotes cooperation and communication between parents and students (Corno et al., 1996). Furthermore, school parent involvement programs (TIPS)

improve student attitudes and completion rates by motivating parental involvement (Epstein and Van Voorhis, 2001). Supportive parental involvement is beneficial for homework, but dysfunctional relationships can exacerbate the problem. The impact of parent-child bonding on homework performance needs to be considered (Bempechat et al., 2004).

Studies agreed that homework promotes children's academic and extra-academic development, as stated by Bembenutti (2011), who highlighted long-term benefits such as improved academic performance, participation in extracurricular activities, and parental support. Also, Gill and Schlossman (2004) emphasized how homework has improved student self-adjustment skills and prepares for training and discipline. In addition, duties have established relationships, communication, and personal development, which proves their importance in education (Epstein, 1983).

Earlier research has shown that various factors influence the effectiveness of homework completion. Parental socio-economic status is one of the major influences on children's educational outcomes. For example, wealthy families provide their children with access to resources through technology and private tutors that improve their academic performance. In contrast, children from poor families may not benefit from these advantages, which affects their academic achievement (Ermisch and Francesconi, 1997 and 2000). Parents' support, participation, and monitoring play an important role in the formation of children's education. The educational level of parents, especially mothers, influences children's academic achievement (Hiveman et al., 1995). Also, technology has facilitated communication between parents and teachers by providing collaborative and multimedia resources (Richards-Babb et al., 2011). Homework accountability is another component that is essential to achieving academic goals because it explains judgments and actions related to homework (NOUN, 2008).

### **Purpose of the Study**

This study investigated parental engagement in homework tasks in public and private secondary schools in Addis Ababa. Motivated by parents' desire for quality education and their concern for student outcomes (Saboka, 2003), the researcher seeks to fill the knowledge gap by studying the differences and similarities in parents' engagement with homework in these schools. In this qualitative methods study, our research questions (RQs) are as follows:

RQ1. How are parents involved in their children's instructional activities in public and private secondary schools in Addis Ababa city?

RQ2. How are parents involved in creating favorable conditions for a child's homework process in private and government secondary schools in the city of Addis Ababa? How is this affecting learners' engagement?

RQ3. To what extent do parents' socioeconomic conditions influence homework process in private and public secondary schools in the city of Addis Ababa?

## **METHODS**

### **Research Design and Approaches**

Among other qualitative approaches, an embedded approach defines the study's methodology, multiple-case study design, and qualitative research methods. The use of qualitative research methodology enabled the comprehensive and detailed exploration of the phenomenon, facilitating the collection of extensive data through various methods (Pring, 2015). Hence, employing a multiple-case study design provided a more in-depth understanding of the subject, and the embedding approach facilitated comparisons across cases (Yin, 2013). These methodological aspects enabled a complete investigation of how parents engage in homework activities in private

and public secondary schools within the Addis Ababa City Administration.

### Samples and sampling techniques

Purposive sampling is employed since it is a method where researchers select specific individuals, events, or locations based on the valuable insights they provide (Ogula, 2005). The ensuing table shows the characteristics of the selected respondents.

**Table 1.Characteristics of Respondents**

	Gender		Total	Qualification	Gender		Total	Qualification
	M	F			M	F		
<b>School Leaders</b>	2	1	3	Masters	1	2	3	Masters
<b>Teachers</b>	4	2	6	Degree	3	3	6	Degree
<b>Parents</b>	3	3	6	Diploma	5	1	6	Diploma
<b>Total</b>	9	6	15		9	6	15	

In the above **Table 1**, 30 participants—12 teachers, 12 parents, and six school leaders— from both public and private schools participated in the study. They were selected based on their qualifications and their status within the organization. The study concentrated on six chosen secondary schools, identified as six distinct cases, which exhibited different levels of academic success across three sub-cities, attributed to variations in student performance on national assessments (World Bank, 2005). These were Etege-Menen and Bekulos-Nur; high-achieving secondary schools; medium-achieving secondary schools were Addis Ketema and Amigonia; and low-achieving secondary schools were Ayer-Xena and Betel-Mekane-Yesus. The research focused on three sub-cities, Gullale, Kolfe-Keranio, and Addis-Ketema, due to observed disparities in student performance on national examinations.

### Data collection instruments

A semi-structured interview was employed as one method of data collection. A semi-structured interview is a data-gathering technique in which the interviewer is not required to ask exact formal questions (George, 2022).

### Semi-structured Interviews

In this study, semi-structured interviews were used to collect accurate and individualized information. Respondents are willing to use tape recorders. Interviews lasted 50 to 60 minutes. The study utilized interviews conducted in the Amharic language, as it is the official language of the city and the country. The interviews were recorded and then translated into English to make analysis easier. A total of 30 individuals, 12 parents, 12 teachers and six school leaders, participated in the interview process.

### Method of Data Analysis

Thematic data analysis was conducted post-data presentation, examining varied epistemologies and inquiries. Braun and Clarke (2006) define it as detecting, analyzing, categorizing, summarizing, and presenting themes through color-coding. Accordingly, the data analysis classified teachers as T one (T1) to T twelve (T12), parent responses as P one (P1) to P twelve (P12), and school leaders as L one (L1) to L six (L6). As well, both private and public schools have received the assigned codes and are classified as high-achieving private schools as HAPS, medium-achieving private schools as MAPS, and low-achieving private schools as LAPS, while high-achieving government schools as HAGS, medium-achieving government schools as MAGS, and low-achieving government secondary schools as LAGS. The dataset underwent rigorous analysis to discover

recurrent trends. The performance of schools in national exams determined their categorization into three groups: low-achieving, medium-achieving, and high-achieving.

## RESULTS

As currently mentioned, the concept of parental engagement in homework became evident in the nineteen sixty through the twentieth century, when parental involvement in homework was crucial to a child's academic progress. (Brooks-Gun et al., 2000). Parental involvement in homework has many dimensions, but this study analyzes homework involvement from three perspectives only: participation in instruction, creating a favorable environment, and parental socio-economic influence on homework. The results indicate divergent and convergent trends in their participation in homework in both private and public secondary schools, which were based on three themes identified in each topic through category formation.

### **Instructional involvement of Parents in Homework**

Today, digital technology is playing a pivotal role at everyone's door. The effectiveness of homework also depends heavily on parental involvement in the provision and monitoring of the use of digital devices during homework. Thus, feedback from participants across the three private and public high school levels indicated variations in the application of digital technology for homework purposes. They expressed:

As eminent by HAPS, Most students used digital technologies to finish their homework. [T1, P2, L1,...]. But in HAGS, some parents avoided the use of digital technologies and encouraged children to utilize social media. [P7, T6, L4]. Once again, as stated in MAPS, children are allowed to use laptops and Wi-Fi effectively to do their homework. [P3, T3, L1]. As well, in MAGS, Parents handled the use of digital technology. [T9, P8, L5]. Yet respondents in LAPS and LAGS felt the same way, saying the use of technology among children is bad. [L3, T5, P6, and T12, L6, P11].

Earlier research has backed the necessity of educational accountability, particularly as homework validation demands higher levels of responsibility, and many stakeholders do not hold favorable views on this matter. In numerous private and public high schools, families urge institutions to ensure their children remain responsible for finishing their homework. In certain private and public high schools, the accountability links among stakeholders are not very strong. This was emphasized by respondents:

Parents in HAPS have efficient monitoring even when there is no legislation controlling education.[T2, L1, P1]. While, in HAGS, full clarification was given regarding the responsibilities of each party in carrying out their respective tasks, and stakeholders responded effectively. [T7, P8, L4]. Respondents in MAPS say parents support children with more responsibility and emphasis.[L2, T4, P4]. As well, in MAGS, a system of accountability exists that promotes children and helps them become law-abiding citizens.[P9,T8,L5]. Additionally, in LAPS, children are aware of and know their responsibilities and rights when it comes to homework.[T6, L3, P5]. However, children couldn't maintain the necessary criteria to meet the responsibilities. [P11, L6, T11]. as celebrated by LAGS.

Regardless of their educational background, parents' support and guidance at home have a beneficial impact on a child's learning. To help their children meet homework goals, parents need to support and remind them about their homework. In this setting, the sources mentioned that:

In both HAPS and HAGS, continuous and erratic assistance was provided, and also children were well reminded while they were working on their homework assignments. [T1, L1, P2], and [L4, T7, P8]. In addition to offering their support, parents in both MAPS

and MAGS reminded and urged their children to turn in their homework on time.[L2, T3, P3], and [T9 10, L5]. But in LAGS, less assistance was provided. [P11, L6, T12], while in LAPS, only devoted parents provide the support.[T5, L3, P6].

Parental motivation is essential in influencing the way children engage with their homework in a positive manner. In certain schools, children who were motivated showed a greater enthusiasm for participating and completing their homework assignments. They were also driven by leisure activities, tangible rewards, and monetary incentives. Consequently, participants came to realize that:

Parents are very supportive and recognise the best students. [L1, T2, P1], and [T7, L4, and P8] in both HAPS and HAGS., while in MAPS ad MAGS, children are inspired and provided recreational opportunities. [T3, L2, P4], and [P9, T10, L5]. Additionally, in LAPS, free time is more important.[T5, L3, P6], but in LAGS, both monetary and material benefits were provided by parents.[P11, L6, T12].

Previous studies have shown that effective parent-child conversations and harmonious communication contribute to better completion of homework tasks by children. In three categories of private and public secondary schools, parents interact with their children to different extents. Participants emphasized the importance of this mutual communication between the two sides:

HAPS shows high parent-child dialogue. [P2, L1, T1], but HAGS show lower communication. [P7,L4, T8]. AS well, in MAPS, inadequate communication was observed, [T3, P4, L2], but in MAGS, a moderate degree of cooperation was achieved. [T9. L5, T8]. LAPS also show an effective interaction with children. [L3, P5, T6], while in LAGS, telephone conversation was common. [P11.T12, L6].

The participation of individual parents can greatly improve a child's homework experience, but the role of parent leaders in this situation is just as important. In certain schools, parent leaders focus more on financial matters than on academic concerns, whereas in others, they emphasize achieving excellence in homework and have made important contributions to this area. The participants emphasized the significance of their involvement in all three levels of secondary education, as outlined below:

In HAPS and HAGS, parent leaders strived for homework excellence and have made a significant contribution to homework. [P1, T2, L1], and [P7, T8, L4]. Also, in MAPS, they engaged in productive interaction between them and teachers. [P4, T3, and L2], but in MAGS, parent leaders struggle with finances as opposed to academics. [P9, T10, L5]. Similarly, in both LAPS and LAGS, they handle money issues more than academics. [P6, T5, L3], and [P11, T12, L6].

### **Creation of a conducive Environment for Children's Homework**

A nurturing homework setting greatly enhances how effectively a child can complete their assignments. Homework environments encompass both tangible and mental aspects. The information collected from various sources suggests that some parents have created supportive atmospheres for homework, whereas others have not managed to do so. Participants stated that:

With regard to maintaining steady rules in both HAPS and HAGS, parents maintain an uninterrupted homework routine and assist children in following schedules. [L1, P2, T1] and [L4, P7, T8]. Nevertheless, parents in both MAPS and MAGS applying of rules without guiding the principle. [P3, T4, L2], and [T8, P9, and L5]. Also, both, LAPS and LAGS maintain discipline without formal guidelines or procedures. [P5, L3, T6], and [L6, P12, T11] respectively.

A well-equipped study space is a crucial component of a nurturing homework environment that parents should create. In this context, not all institutions across the three educational tiers offered sufficient facilities and conducive study environments. Some participants communicated that: Both HAPS and HAGS have “a calming house environment.” [L1, T2, P1], and [L4, T7 and P8]. “Digital device prohibition is challenging.” [L2, T3, P3], and [L5, T9, P10] in both MAPS and MAGS. In LAPS, “Peace disrupted by noise.” [P6, T5, L3], while, in LAGS, “some parents turn off their electronics to avoid distraction.” [P11, T12, L6].

A properly furnished study space is a crucial component of a conducive homework atmosphere that parents should create for their children. In this context, not every school across the three educational stages offered sufficient facilities and conducive learning environments. Some participants mentioned that:

Parents provide organized study spaces for homework. [T2, P1, L1], and [T7, P8, and L4] in both HAPS and HAGS. However, in MAPS and MAGS, children seldom complete in reading rooms, and in most cases, no separate study room was filled with materials. [T3, P3, L2], and [T8, P7, and L5]. Also, in LAPS, children use the shared room for doing homework. [P6, T5, L3], and in LAGS, in most cases, no conducive study areas were available. [P11, T12,L6].

### **Parental Socioeconomic influences on Homework**

The socioeconomic status of parents influences homework, having both beneficial and detrimental effects. Factors such as parental wealth, educational background, job circumstances, and gender significantly influence homework performance. Consequently, participants shared their insights on how parental socioeconomic status affects homework performance in the following ways:

With regard to impacts of economic disparities on homework, parents in HAPS have better parents managing financial issues and course material. [L1, P2,T3]. But parents in HAGS provide free food and clothing to reduce stress. [T8, L4,P7]. Comparably, in MAPS, parents provided adequate meals, clothes, and efficient instruction. [P4, L2, T3], however, in MAGS, free clothing and food distribution has reduced the disparity among parents, which was provided by the government. [L5, P9, T10]. In LAPS, Parental economic gaps impact children. [T6, P5,L3]. Similarly, in LAGS, the mechanisms of teaching and learning are deteriorating, though material support was provided. [P11, T12, L6].

It was acknowledged that the economic circumstances, particularly for affluent parents, could impact their children's educational achievements, although having financial resources doesn't automatically guarantee better performance. Children encounter unforeseen situations when given additional money. In regard to this, respondents emphasized:

In HAPS, financial resources do not necessarily lead to superior performance. [L1,P1,T2]. Besides, in HAGS, children are subjected to unexpected circumstances when provided with more money. [T7, L4, P8]. In MAPS, Learning affected by finances. [P3, T4, L2], While in MAGS, parental background impacts a child's education more than monetary supply. [L5,P9,T10]. LAPS also reflect on the ethical and psychological effects of money on children's education. [L3, P5,T6], Similarly, in LAGS, context and heredity are responsible for good performance compared to financial issues. [P12, L6, T11]

The educational success of children is significantly shaped by the various backgrounds of parents. The work conditions of parents, whether in the public or private sector, influence their children's ability to complete homework assignments. Parents come from various educational

backgrounds. Additionally, the employment and educational background of parents play a significant role in their children's education, especially when homework is concerned. Respondents indicated that:

In HAPS, employee parents invest more time in their children's homework than do jobless parents. [L1,P1,T2]. On the other hand, parents in the public sector offer sufficient assistance. [L4, P8, T7] in HAPS. Moreover, fathers generally offer more support to their children and appear to prioritize homework to a greater extent. [L2, P3, T4] in MAPS. While in MAGS, education level and home responsibilities affect homework. [L5,P9, T10]. Besides, in LAPS, employed parents have more access to education. [L3, P6, T6], and in LAGS, some employees do pay for their children's education. [L6, P11, and T12].

The gender of parents influences the effectiveness of homework completion. The active involvement of both parents significantly enhances the completion of their child's homework. However, the participants indicated that various factors could influence their level of engagement with homework.

Fathers help children more, and they appear to value homework more. [L1, P2, T1], and [L4, P7, and T8] in both HAPS and HAPS. Yet, in MAPS and MAGS, mothers are more concerned about household duties than homework. [L2, P3, T4], and [L5, P9, T10]. Comparably, in low- achieving private and public secondary schools, Dads worry more about homework than anyone else. [L3, P5, T6], and [L6, T11, P12].

## DISCUSSION

This section discussed the engagement of parents in homework and compares the results with previous studies. It examines data on parental engagement in homework, the learning environment, and the impact of socioeconomic status on involvement in homework performance in both private and public secondary schools.

### Parental involvement in Homework Instruction

Homework has evolved in its significance and perception since the nineteen sixties, according to Gill and Schlossman (1996). A recent finding indicates that, with the exception of low- and high- performing secondary schools, students view homework positively and attribute it to improving academic skills and facilitating learning opportunities. Digital technologies have become also instrumental in shaping homework practices, Richards-Babb et al. (2011). Therefore, the findings show that the use of digital tools in secondary schools is increasing, although not all schools have fully embraced it. As well, the implementation of homework accountability is crucial for effective education policies, as noted by the National Open University of Nigeria (2008). Hence, most secondary schools, both private and public, adhere to traditional homework accountability measures.

According to Ermisch (2000), parents have varying priorities when it comes to assigning homework to their children, with some valuing homework over leisure. Hence, only parents from average-performing private and public secondary schools assign more homework, while parents from average-performing private and public schools take a moderate approach. Contrary, Parental involvement in homework activities was facilitated by initiatives such as TIPS, which encourage parental involvement in homework and can thus lead to greater investment in academic outcomes (Epstein and Van Voorhis 2001). Thus, compared to others, only parents from average-performing private or public secondary schools tend to do so.

Ineffective monitoring of homework execution may impede the achievement of intended goals. The outcomes of the study suggest that both public and private secondary schools engage in varying proportions of oversight regarding their students' homework. This was aligned with

available sources that characterize homework monitoring as involving assistance requests, progress tracking, and parental supervision of children's homework assignments, as perceived in 2003 by Toney et al.

Additionally, interview results reveal that many private and public secondary schools have recognized that notifying students about incomplete homework encourages timely completion. This approach implies that experts advocate for diverse homework strategies in which parents oversee and remind their children of essential tasks while allowing students the autonomy to decide the order in which they tackle these assignments.

### **Favorable Conditions for doing Homework**

Studies show that the achievement of scholarly goals is closely affiliated with the comfort experienced during homework tasks. Hence, most secondary educational institutions, whether public or private, adopt uniform policies aimed at cultivating a supportive learning environment. It is vital to establish a nurturing educational setting for children, as their academic performance is deeply influenced by the comfort they derive from engaging in homework activities. This assertion was supported by earlier studies that emphasize the significance of parents in delivering their children with a relevant learning framework and timetable (Delgado Gaita et al., 1992). Additionally, to uphold the credibility of both physical and psychological environments, it was invaluable for school administrators to formulate a serene atmosphere conducive to effective homework completion (Xu and Corno, 1998). The overwhelming number of results imply that all secondary schools, regardless of whether they are private or public, serve as a quiet space for students to accomplish their homework tasks.

Avoiding interference in the homework environment is also an important aspect that requires special attention for children. In this regard, compared to the three school levels, the best performing private and public secondary schools are generally better equipped to deal with disruptions that arise during students' homework and show notable effectiveness in controlling noise and distractions compared to less efficient private sector schools. Therefore, this result is consistent with the results of Delgado- Gaitan et al., who stated that educational personnel, including teachers, parents, and after-school program staff, systematically advised students to eliminate external distractions while doing homework. It is not enough to simply avoid disruption; applying positive reinforcement is also very important. Most private and public schools provide positive reinforcement through tangible and intangible means. Thus, a study by Xu and Corneau in 1998 identified the need for positive reinforcement, which includes incentives such as extra free time or rewards that encourage teachers, parents, and postsecondary program staff to perform their tasks effectively.

Parents play a crucial role in creating a conducive learning environment for their children, but many schools lack uniforms and supportive facilities. Therefore, the best-performing public and private secondary schools have more effective learning spaces than the others, which is consistent with the previous study that advised teachers, parents, and guardians to prepare their learning environment. Delgado-Gaitan et al. (1992). Although studies show the great positive contribution of Internet services to homework routine and to the increase in collaboration, access to multimedia resources, and immediate feedback (Sarrendo, 2004), most schools have limited access to these resources.

### **Parental Socioeconomic Circumstances and Homework**

Parents' socio-economic status significantly influences children's academic outcomes, either positively or negatively. For example, economic inequality could have a negative impact on children's academic and emotional well-being (OECD, 2014). Nevertheless, high-level parents interrupt this gap and provide free dinner and effective educational methods. The study argues that while the results show that higher social classes often take on greater responsibilities, in some

cases, lower socio-economic groups will be more successful than higher social classes due to environmental and inheritance factors. However, children from lower socio-economic backgrounds struggle to use and become unfamiliar with technology, while parents of successful private school children prioritize partying over learning.

A study by Haveman et al. (1995) found that education and employment conditions have a significant impact on children's development. Hence, in the findings, educated and employed parents provide knowledge-based support, hire tutors, and encourage reading activities compared to uneducated and unemployed parents in most secondary schools. On the other hand, parental support for homework varies by gender and biological factors: working mothers tend to have lower academic achievement; a 2000 study by Elmisch found that children whose mothers worked actively during their formative years tended to have lower academic achievement than those whose mothers were often at home. Hence, mothers became more active in middle-performing secondary schools, while fathers are more supportive in both high and medium secondary schools.

## CONCLUSION

The study's findings led to the following conclusions regarding parental engagement in homework, specifically contrasting high, medium and low achieving private and public secondary schools, according to their respective cases.

### **Case one and two: High-achieving private and government secondary schools**

The study explores parental engagement in high-performing private and public secondary schools, highlighting the challenges of academic excellence and homework. Both school systems prioritize a positive learning environment through consistent routines and dedicated learning spaces. However, parental involvement differs between the two schools. Private schools use various motivational approaches, such as incentives and parental involvement in extracurricular activities, while public schools offer additional support services such as tutoring and counseling. In both types of schools, fathers emphasize the importance of doing homework, but private schools suggest a more moderate workload.

### **Case three and four: Medium-achieving private and government secondary schools**

A comparative analysis of medium-achieving private and public secondary schools revealed similarities and differences in parental involvement in homework: Both types of schools place a high value on homework and use motivational strategies and technology. Private schools struggle with disruptions and internet access, while public schools face communication issues and varying parental support. Both lack dedicated study spaces, offer incentives, and enforce rules. Socio-economic factors such as education level and parental responsibility influence homework experiences: in private schools, parents provide better support, whereas in public schools, mothers prioritize household chores over homework help more than fathers.

### **Case five and six: Low-achieving private and government secondary schools**

A comparative analysis of private and government secondary schools with a low level of height emphasizes the importance of parents' participation in homework. Both types of schools consider homework important and contribute to the interaction between parents and teachers. However, private schools excel at creating a positive homework environment with clear instructions and incentives, while public schools rely more on rewards. Socio-economically, both parent groups value education, but there are differences in the importance of father involvement and time management. Private school parents are more involved in homework guidance, while public school parents may have difficulty providing the same level of support due to time, resource, or knowledge constraints. Besides, the study emphasizes the diverse challenges of parental involvement in low-performing schools. Both private and public schools struggle with engaging

parents and creating supportive homework environments, with success influenced by socioeconomic factors and institutional policies.

### **Suggestions**

The study investigated both private and public secondary schools with differing performance levels—high, medium, and low—concentrating on elements like parental involvement in homework, the existence of an environment that encourages homework, and socio-economic factors. While parental engagement has proven to improve academic performance in some schools, many institutions have failed to recognize its importance. Recommendations include developing frameworks to encourage parental participation, educating parents on its benefits, providing additional support for families with financial limitations, promoting involvement from parents of all socioeconomic statuses, and ensuring that every child has equal access to educational resources to enhance academic achievement.

### **Limitations**

This study has some limitations; its concentrated examination of a limited number of government and private secondary schools might restrict its relevance to other groups and institutions nationwide, highlighting the need for further studies on this subject in different contexts.

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**Ethical Statements:** The research was conducted in accordance with the approval from the Institutional Review Board of the College of Education and Behavioral Studies (CEBS) at Addis Ababa University. This approval is recorded under protocol number CEBS\_C & I/IRC/05-2024, dated February 22, 2024, and was endorsed by the committee members.

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## What do Teachers Think About Critical Thinking?

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### Abstract

This paper investigated what teachers thought about critical thinking. This study adopted a qualitative research design. The sample consisted of 21 participants. Data were collected using a semi-structured interview guide. The data were analyzed using descriptive analysis. As a result of the analysis, it was observed that teachers perceive critical thinking as questioning, deep understanding, evaluation, and considering different perspectives. Teachers believed critical thinking was necessary for achieving self-improvement, developing different perspectives, building resilience to misinformation, and solving problems. They stated that teachers with critical thinking skills were tolerant and self-critical individuals who could look at things from a different angle. They noted that they conducted discussion, problem-solving, and question-and-answer sessions to help their students develop critical thinking skills. They recommended that teachers provide safe environments for students to spark their curiosity and encourage them to question things to help them develop critical thinking skills.

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## INTRODUCTION

Scientific and technological advancements, along with developments in teaching methods, have had a profound impact on the roles expected from individuals. Critical thinking, a vital component of twenty-first-century skills, is a key objective in education.

Critical thinking is more than just a way of thinking. Critical thinking serves as the distinguishing factor between knowledge and non-knowledge. It is a cognitive approach that seeks to attain understanding and facilitates precise assessments rooted in knowledge (Arlı Çil, 2021). Critical thinking helps one make correct judgments (Lipman, 2003). Critical thinking is not about a negative approach aimed at uncovering flaws. Instead, it involves impartial and unbiased assessments of either our own beliefs or the assertions of others (Haskins, 2006). Critical thinking is the ability to construct arguments. To construct good arguments, we need to justify ideas and draw conclusions through connected thinking (Bowell, Cowan, & Kemp, 2022). While most researchers treat critical thinking as a systematic, connected, and coherent thinking activity, they ignore the relationship between critical thinking and knowledge, especially ethical knowledge. However, we need to decipher this relationship to understand what critical thinking is. The relationship between critical thinking and knowledge can only be established from a philosophical perspective. Considering the relationship between knowledge and critical thinking, we can state that the latter is nothing but philosophical thinking (Arlı Çil, 2021, p.129). Critical thinking enables individuals to combat propaganda, scrutinize implicit assumptions, discern deception, evaluate the credibility of information sources, and methodically navigate problems or decisions in the most effective manner (Halpern, 2003). Critical thinking involves posing, analyzing, and resolving questions based on a logical foundation and placing trust in the outcomes (Nosich, 2018). Critical thinking relies on specific criteria and methodologies, including clarity, coherence, consistency, reasonableness, skepticism, and accurate reasoning concerning a subject, fact, or idea. Critical thinking is a mode of thought that identifies erroneous modes of thinking, embodies a research-driven inclination toward deeper thinking, instills an attitude and skill that values evidence and outcomes, strives to arrive at not just any conclusion but coherent and rational conclusions and judgments, and remains open to change and self-correction through continual monitoring of its own thought processes, thanks to its capacity to both solve problems and recognize them (Gündoğdu, 2009).

Koç Erdamar and Bangir Alpan (2017) conducted a qualitative study to survey teachers regarding their perceptions of critical thinking. The study revealed that teachers viewed thinking as a limited, narrowly defined capability inherent in all individuals, involving the capacity to utilize information. Critical thinking, in their perspective, was described as a process encompassing the interpretation, analysis, and evaluation of information—a profound and systematic skill possessed by not every individual. Kestel and Şahin (2018) also conducted a qualitative study to unveil what science, social studies, and religious culture and ethics teachers thought about critical thinking and critical thinking skills. In their quantitative research, Korkmaz (2009), Polat and Konaş (2018), and Kurban and Tok (2019) focused on teachers' critical thinking tendencies and levels. Koç Erdamar and Bangir Alpan (2017) investigated the impact of teachers' critical thinking tendencies on their organizational commitment. Iliman Püsküllüoğlu and Altinkurt (2018) compared the learning styles and critical thinking dispositions of secondary school teachers. Tunçer and Sapanıcı (2021) addressed the relationship between teachers' critical thinking dispositions and organizational opposition behaviors. Alper (2010) concentrated on the relationship between critical thinking dispositions and perceptions of practice. Other quantitative studies have investigated preservice teachers' critical thinking dispositions (Can and Kaymakçı, 2015; Durukan and Maden, 2010; Ekinçi and Aybek, 2010; Ocak, Eymir and Ocak, 2016; Kartal, 2012; Kuvaç and Koç, 2014; Yıldız and Yılmaz, 2020).

Education systems aim to instill skills in individuals that encompass interpreting and evaluating information, problem-solving, constructing arguments, reasoning, applying logic, and discerning erroneous modes of thinking. These skills are considered important expectations from

individuals within educational contexts. Curricula developed by the Ministry of National Education aim to turn students into individuals with critical thinking skills. Teachers play a key role in helping students develop critical thinking skills. There is only a small body of research on teachers' views on critical thinking. Therefore, we believe that this study will make a valuable contribution to the existing literature.

This study investigated what teachers thought about critical thinking. Research questions are as follows: What are teachers' views on critical thinking?

## METHOD

### Research Model

This qualitative study adopted a phenomenological research design to unveil teachers' views on critical thinking. Phenomena are events, experiences, perceptions, orientations, concepts, and situations. Phenomenology focuses on investigating the phenomena that we often encounter in daily life but cannot fully understand (Yıldırım & Şimşek, 2006, p.72). Qualitative research seeks to comprehend a phenomenon from the viewpoint of the participants (Merriam & Grenier, 2019).

### Study Group

The study population consisted of all teachers in the province of Van, Türkiye. The sample consisted of 21 teachers recruited using convenience sampling, which is a purposive sampling method (Patton, 1987; Yıldırım & Şimşek, 2006). Convenience sampling is a cost- and time-effective method that is often employed when obtaining a truly random or representative sample is challenging (Yıldırım & Şimşek, 2006).

**Table 1. Characteristics**

Characteristics	Number (N)	
Gender	Woman	7
	Man	14
Branch	Classroom	9
	Preschool	2
	Special Education	2
	Science	1
	Physical Education	1
	Biology	1
	Information Technologies	1
	Visual Arts	1
	Fashion Design and Technology	1
	Turkish	1
	Social sciences	1

Two-thirds of the participants were men (66.6%). The sample consisted of classroom (n=9), preschool (n=2), special education (n=2), science (n=1), physical education (n=1), biology (n=1), information technologies (n=1), visual arts (n=1), fashion design and technology (n=1), Turkish (n=1), and social sciences (n=1) teachers.

### Data Collection

The data were collected using a semi-structured interview guide developed by the researcher based on a literature review. The guide consisted of open-ended questions. The researcher consulted two experts and asked them to check the questions for intelligibility and relevance. Then, she briefed all teachers about the research purpose and procedure and received informed consent from those who volunteered to participate. Each interview lasted 20-25 minutes. The following are the research questions:

1. What does critical thinking mean?
2. Why critical thinking is necessary?
3. What characteristics teachers with critical thinking skills have?
4. In what way critical thinking help students?
5. What methods and techniques help students develop critical thinking skills?
6. How do we help students develop critical thinking skills?

### **Data Analysis**

The data were analyzed using descriptive analysis, which is used to obtain related concepts and associations. Researchers use descriptive analysis to group similar data under specific concepts and themes and then organize and interpret this data in a manner that facilitates comprehension for the reader (Yıldırım & Şimşek, 2006)

First, the researcher read the raw data and then coded them. She assigned a code to each participant (P1, P2, P3, etc.). She then developed themes and used direct quotations to illustrate each theme.

## **RESULTS**

This section presented the findings based on the research questions.

### **WHAT DOES CRITICAL THINKING MEAN TO YOU?**

Participants were asked the question, “What does critical thinking mean to you?” Their responses were grouped under four themes: (1) questioning, (2) in-depth comprehension, (3) assessment, and (4) a different perspective.

Most participants associated critical thinking with questioning. The following are some quotations:

*“Critical thinking means you have to ask questions about what's going on, and don't forget to question those assumptions too (P4).”*

*“Critical thinking means questioning a thought (P10).”*

*“I'd define critical thinking as all about asking questions and coming up with fresh, unique perspectives (P13).”*

*“Critical thinking is all about questioning and thinking about the how and why (P15).”*

Most participants viewed critical thinking as in-depth comprehension. The following are some quotations:

*“Critical thinking is all about the power to think deeply and logically from multiple angles to crack problems and unearth creative solutions (P3).”*

*“Critical thinking is a skill that helps us understand the reality and depth of words and sentences (P7).”*

*“Critical thinking is all about really digging into an event or problem, looking at it from all angles (P18).”*

Most participants established a connection between critical thinking and assessment.

The following are some quotations:

*“Critical thinking sharpens our minds, letting us size up situations and put our analytical superpowers to work (P5).”*

*“Critical thinking is all about reasoning, analysis, and evaluation (P8).”*

Most participants believed that critical thinking had something to do with developing a different perspective. The following are some quotations:

*“Critical thinking is about looking from a variety of perspectives*

*(P4).” “I’d define critical thinking as developing new perspectives*

*(P13).”*

*“Critical thinking means taking a good look at events from various angles (P18).”*

#### **WHY DO YOU THINK CRITICAL THINKING IS NECESSARY?**

The second research question was, “Why do you think critical thinking is necessary?” Participants’ responses were collected under four themes: (1) for improvement, (2) developing a different perspective, (3) building resilience to misinformation, and (4) problem-solving.

Most participants believed that critical thinking was essential for improvement. The following are some quotations:

*“Critical thinking is a crucial skill for individuals to grow, evolve, and adapt to ever-changing circumstances (P2).”*

*“Criticism is essential for a healthy development plan (P3).”*

*“Critical thinking helps us figure out and dive into stuff we’re not yet in the know about (P17).”*

Most participants believed that critical thinking was necessary for developing a different perspective. The following are some quotations:

*“Critical thinking is like a mental tool that lets us really get what info’s all about, keep our thinking fair, do our own thing, and see things from different angles (P1).”*

*“Critical thinking is necessary to reach different ideas and perspectives (P6).”*

*” Critical thinking encourages us to ask questions, put our brains to work, see things from various angles, and break free from the “just follow orders” mindset (P20).”*

Most participants noted that critical thinking helped us build resilience to misinformation. The following are some quotations:

*“Critical thinking is like our superpower against getting duped by sneaky stuff and fake news. In this info-packed age, it helps us size up where the info's coming from, spot fakes, and make smarter judgments (P4).”*

*“Critical thinking is a must to steer clear of trickery and being taken advantage of. When tackling a task, it's vital to consider all the angles, both the good and the bad (P15).”*

*“Critical thinking helps us figure out and dive into stuff we're not yet in the know about (P17).”*

Most participants stated that critical thinking was necessary to solve problems. The following are some quotations:

*“Critical thinking is like a workout for our problem-solving muscles. It lets us break down tricky problems, view them from different angles, and cook up smart, creative solutions that actually work (P4).”*

*“Critical thinking is essential for developing ideas and solving problems (P8).”*

### **WHAT CHARACTERISTICS DO YOU THINK TEACHERS WITH CRITICAL THINKING SKILLS HAVE?**

The third research question was, “What characteristics do you think teachers with critical thinking skills have?” Participants’ responses were grouped under three themes: (1) looking at things from different perspectives, (2) developing tolerance, and (3) self-critique.

Most participants believed that teachers with critical thinking skills could look at things from different perspectives. The following are some quotations:

*“Teachers with critical thinking skills do not have stereotypes. They don't look at things from one point of view (P2).”*

*“Teachers with critical thinking skills are versatile and open to different views and opinions. They are useful to others (P6).”*

*“Teachers with critical thinking skills are cool with getting feedback from their students and others. They're all about looking at and teaching a subject from different angles (P11).”*

*“Teachers with critical thinking skills are open to improvement and look at things from multiple perspectives (P14).”*

Most participants noted that teachers with critical thinking skills were more tolerant. The following are some quotations:

*“Teachers with critical thinking skills are pretty tolerant. They read, learn, listen to others, and check out their own ideas (P3).”*

*“Teachers with critical thinking skills need to find that balance between being laid-back and serious. They've got to stay fair with their students because everyone's unique, and that's something they should always keep in mind (P18).”*

*“Teachers with critical thinking skills are tolerant individuals who respect the perspectives of others, question them, and view differences as a source of enrichment (P20).”*

Most participants remarked that teachers with critical thinking skills could criticize themselves. The following are some quotations:

*“Teachers with critical thinking skills set examples for their students. They question their own thoughts and analyze things critically (P4).”*

*“Teachers with critical thinking skills are down-to-earth folks who can enhance their own abilities, self-critique, and tackle problems effectively (P15).”*

*“Teachers with critical thinking skills should be the kind of smart teachers who ask questions, stay in the loop with what's happening, and aren't afraid to give themselves a little pep talk (P18).”*

### **IN WHAT WAY DO YOU THINK CRITICAL THINKING HELPS STUDENTS?**

The fourth research question was, “In what way do you think critical thinking helps students?” Participants’ responses were collected under three themes: (1) problem-solving skills, (2) self- confidence, and (3) thinking independently.

Most participants noted that critical thinking helped students develop problem-solving skills.

The following are some quotations:

*“Critical thinking is very useful for students. Critical thinking skills allow them to consider problems from various perspectives and come up with alternative solutions (P1).”*

*“Critical thinking is like a workout for our problem-solving muscles. It lets us break down tricky problems, view them from different angles, and cook up smart, creative solutions that actually work (P4).”*

*“Critical thinking helps students take a step back, look at problems with fresh eyes, come up with innovative solutions, and dive deep into the heart of the matter (P8).”*

Most participants remarked that critical thinking helped students build self-confidence. The following are some quotations

*“Critical thinking skills help students enjoy learning, develop themselves, and make good decisions. They boost their self-confidence (P3).”*

*“Critical thinking helps students develop self-confidence (P14).”*

*“Critical thinking reinforces self-esteem. It helps students discover their own learning methods and allows them to see criticism as an opportunity for self-improvement (P18).”*

Most participants stated that critical thinking encouraged students to think independently. The following are some quotations:

*“Inquiry and analysis skills help students tell the truth from lies. Critical thinking also enables them to think independently (P1).”*

*“Critical thinking means you've got the power to think on your own. Instead of just going along with what others say or what society wants, you can think for yourself, break down info, and come to your own conclusions (P4).”*

### **WHAT METHODS AND TECHNIQUES DO YOU USE IN YOUR LECTURES TO HELP YOUR STUDENTS DEVELOP CRITICAL THINKING SKILLS?**

The fifth research question was, “What methods and techniques do you use in your lectures to help your students develop critical thinking skills?” Participants’ responses were grouped under three themes: (1) discussion, (2) problem-solving, and (3) Question and Answer.

Most participants stated that they conducted “discussion” sessions in their lectures to help their students develop critical thinking skills. The following are some quotations:

*“I want to help students sharpen their critical thinking by getting them talking and sharing ideas in our discussions (P1).”*

*“I use discussion techniques (P13).”*

*“Before diving deep into any topic, I start things off by scribbling a few examples on the whiteboard and getting the students to chat about them. After that, I throw in the big questions, like why this topic matters and how it's gonna make life better (P16)”*

Most participants noted that they used the “problem-solving” method in their lectures to help their students develop critical thinking skills. The following are some quotations:

*“I roll with the problem-solving approach to tackle real-life issues and get students flexing those critical thinking muscles (P1).”*

*“I toss them a problem and throw out the question: ‘How would you fix it?’ (P8).”*

*“I’m all about the hands-on, real-life experience, and getting down to problem-solving methods (P20).”*

Most participants noted that they held question-and-answer (Q&A) sessions in their lectures to help their students develop critical thinking skills. The following are some quotations:

*“I hold Q&A sessions together with all discussion techniques (P2).”*

*“I’m like the tour guide for my students, leading them on exploration missions through Q&A sessions (P3).”*

*“By asking each other questions (P9).”*

### **HOW DO YOU THINK WE CAN HELP STUDENTS DEVELOP CRITICAL THINKING SKILLS?**

The sixth research question was, “How do you think we can help students develop critical thinking skills?” Participants’ responses were collected under three themes: (1) getting students to develop inquiry skills, (2) providing a safe environment, and (3) arousing curiosity.

Most participants stated that we should get students to develop inquiry skills to help them acquire critical thinking skills. The following are some quotations:

*“You should motivate your students to fire away with their questions, helping them question information and stay on the lookout for any hiccups in accuracy or gaps in the story. (P1)”*

*“I give them a tip: don't just swallow ideas whole; question every single thought that comes your way. (P10).”*

*“Teach your students to be the question-askers and keep the inspiration flowing with engaging activities. It's not just about them answering your questions, but about them coming up with their own (P16).”*

Most participants suggested providing a safe environment to help students develop critical thinking skills. The following are some quotations:

*“Create an atmosphere where students feel free to let their thoughts roam. Build a space of trust where no one gets slapped with labels for speaking up (P2).”*

*“Build a space of trust and make sure students understand that they'll get respect no matter what, and that their opinions won't lead to insults or humiliation (P3).”*

*“Craft a safe, welcoming space where students enjoy learning and feel free to express themselves (P6).”*

Most participants noted that we should arouse students' curiosity to help them develop critical thinking skills. The following are some quotations:

*“Fuel students' thirst for knowledge (P1).”*

*“Stoke curiosity with thought-provoking questions, weave connections between subjects during lectures, and get students actively involved in the lessons through guidance (P11).”*

### **Discussion, Conclusion, and Recommendations**

This paper focused on teachers' views on critical thinking. The study sought answers to the following questions: What does critical thinking mean to you?, Why do you think critical thinking is necessary?, What characteristics do you think teachers with critical thinking skills have?, In what way do you think critical thinking helps students?, What methods and techniques do you use in your lectures to help your students develop critical thinking skills?, and How do you think we can help students develop critical thinking skills?

Our participants linked the concept of critical thinking with several key elements, including the act of questioning, delving into a profound understanding of information, the process of evaluation, and the consideration of various viewpoints. Critical thinking, in their perspective, encompassed a multifaceted approach that involved asking questions and thoroughly comprehending the subject matter, critically assessing the information at hand, and acknowledging the importance of different perspectives in reaching well-rounded conclusions. Koç-Erdamar and Bangir Alpan (2017) also found that high school teachers attributed critical thinking to interpreting and making sense of information, scrutinizing and assessing conclusions, and eliminating stagnant or inert knowledge. Nosich (2018) associates critical thinking with asking, examining, resolving questions on a logical basis, and believing in the results. Halpern (2003) argues that critical thinking skills help people recognize propaganda, analyze implicit assumptions, recognize deception, assess the credibility of information sources, and think through a problem or decision in the best possible way. Our participants believed that critical thinking had something to do with understanding phenomena in depth, assessing them thoroughly, and developing different points of view. This result indicates that teachers think that people with critical thinking skills are more likely to make sense of things and assess them from different perspectives.

Our participants held the view that critical thinking empowered individuals to enhance their personal growth, cultivate diverse perspectives, fortify their resistance to misinformation, and effectively address and solve problems. Gündoğdu (2009) claims that critical thinking is the capacity to analytically assess any subject, phenomenon, or idea, employing specific criteria and methods such as clarity, consistency, logic, skepticism, and reasoned examination. To him,

individuals possessing critical thinking skills are adept at identifying flawed thought processes, valuing evidence and conclusions, displaying a propensity for research-driven, profound thinking, arriving at coherent and rational conclusions and judgments, and embracing adaptability by consistently overseeing their own cognitive processes, harnessing both their problem-solving and problem-identifying capabilities (Gündoğdu, 2009). In this context, teachers believe that critical thinking is necessary for solving problems and developing resistance against misleading information. Furthermore, they hold the perspective that critical thinking equips individuals with the ability to explore matters from diverse viewpoints and facilitates personal growth. Kestel and Şahin (2018) documented that all teachers believed that critical thinking skills were essential for students.

The participants' insights shed light on the multifaceted role of teachers equipped with critical thinking skills. From their perspective, such educators were envisioned as dynamic and open-minded individuals who contributed significantly to the learning environment. First and foremost, these teachers were seen as masters of perspective, capable of approaching subjects from a variety of angles. Their willingness to explore different viewpoints not only enriched classroom discussions but also demonstrated a commitment to intellectual diversity and a broad-minded approach to education. Tolerance was a core attribute expected from these teachers. They were seen as individuals who not only respected differing opinions but actively nurtured an atmosphere of acceptance in the classroom. This inclusivity served to create a safe space for students to express their thoughts and ideas without fear of judgment or ridicule. Engaging in self-reflection was another significant trait attributed to teachers with critical thinking skills. These educators were thought to be individuals who routinely assessed their own teaching methods, strategies, and biases. This introspective quality not only enhanced their own professional growth but also set a valuable example for their students by showcasing the importance of self-awareness. The avoidance of stereotypes was a crucial element in the participants' perception of these teachers. They were expected to steer clear of generalizations and preconceived notions, recognizing the dangers of pigeonholing individuals or ideas. By doing so, they helped create a classroom environment that encouraged students to be seen and heard as unique individuals rather than conforming to preconceived notions. A commitment to eschewing one-sided viewpoints was another key expectation. These educators were viewed as individuals who encouraged students to critically evaluate information from multiple sources, emphasizing the significance of a well-rounded understanding. By doing so, they fostered an appreciation for complexity and a capacity for critical analysis. Moreover, the participants regarded teachers with critical thinking skills as open-minded and pragmatic individuals who embraced fresh thoughts and ideas. They were seen as receptive to novel approaches and willing to adapt their teaching methods to reflect changing times and evolving knowledge. Self-improvement was a continuous journey for these teachers. They were expected to actively engage in professional development, remaining current in their fields and seeking opportunities for growth. This lifelong learning attitude set a powerful example for their students, promoting the idea that education is a lifelong pursuit. Additionally, these educators were seen as active listeners who valued the input of their students and colleagues. Their capacity to listen and take into account the perspectives of others not only fostered a sense of collaboration but also ensured that the learning experience was a two-way street. Lastly, practicing self-critique and critically evaluating information were essential habits. These teachers were not immune to error but were open to self-correction and eager to promote a culture of critical thinking and intellectual rigor. This approach contributed to an environment where students were encouraged to question, analyze, and think deeply about the information they encountered.

Participants underscored the fundamental importance of critical thinking skills in the educational landscape. They viewed these skills as not only essential for the academic development of students but also as tools for personal growth. In their view, critical thinking was a catalyst for nurturing problem-solving abilities, allowing students to confront and overcome challenges effectively. Moreover, it was noted that these skills significantly impacted students' self-esteem, instilling a sense of self-assuredness in their ability to analyze and tackle complex

issues. Furthermore, participants stressed that critical thinking skills were instrumental in cultivating students' capacity for independent thought. This independence was seen as a key component of empowerment, as it encouraged students to form their own judgments and perspectives, rather than relying solely on external sources or authorities. In addition, critical thinking was regarded as a dynamic process that encouraged students to explore problems from a spectrum of angles. It was not merely about providing one-size-fits-all solutions but also about encouraging students to engage in a multidimensional examination of issues. Participants believed that critical thinking facilitated the generation of innovative solutions by merging the powers of creativity and sound reasoning. This approach encouraged students to think beyond the conventional and develop a well-rounded skill set that encompassed both imaginative problem-solving and logical analysis.

Our participants emphasized their proactive use of various teaching methods to nurture critical thinking skills in their students. Specifically, they employed discussion sessions, problem-solving exercises, and question-and-answer (Q&A) sessions as integral components of their lectures. The overarching aim of these methods was to stimulate the development of critical thinking capabilities among their students. Discussion sessions played a central role in their instructional strategies. These sessions were designed not only to facilitate lively exchanges of ideas but also to challenge students to think critically about the subject matter. By engaging in discussions, students were encouraged to question assumptions, delve deeper into the topics at hand, and gain a more comprehensive understanding of complex issues. These interactive conversations provided opportunities for students to express their opinions, receive feedback from their peers, and explore diverse perspectives. The environment created during these discussions was one of support and cooperation, fostering a sense of community among the students. Problem-solving activities constituted another essential aspect of their teaching methodology. These exercises were carefully crafted to encourage students to apply critical thinking skills in practical scenarios. By tackling real-world problems, students were prompted to analyze situations, evaluate potential solutions, and make informed decisions. Problem-solving tasks were structured to be collaborative, promoting communication and teamwork as students worked together to arrive at the most effective solutions. Furthermore, the use of Q&A sessions served to maintain a dynamic and engaging learning environment. These sessions encouraged students to actively participate in their own learning process by posing questions, seeking clarification, and probing deeper into the subject matter. By engaging in such interactions, students developed their communication skills and honed their ability to think independently. In summary, our participants' pedagogical approach was rooted in the belief that the integration of discussion, problem-solving, and Q&A sessions into their lectures played a pivotal role in cultivating critical thinking skills. By fostering an environment that prioritized critical examination, promoted active learning, and celebrated diverse viewpoints, they were not only enhancing their students' comprehension of academic content but also preparing them for the complexities of real-world interactions and collaborative problem-solving.

Our participants strongly endorsed the idea that creating an educational environment conducive to critical thinking was contingent on several foundational principles. They emphasized the importance of establishing a safe and supportive atmosphere for students, nurturing their curiosity, and actively fostering inquiry skills as a means to facilitate the development of critical thinking. First and foremost, the concept of a safe environment was viewed as fundamental. Participants believed that students needed to feel secure in expressing their thoughts, opinions, and questions without the fear of ridicule or judgment. By cultivating an atmosphere of trust and respect, educators encouraged open dialogue, enabling students to explore ideas without reservation. In such an environment, students were more likely to engage in the critical examination of concepts and the articulation of their viewpoints. Arousing students' curiosity was seen as a catalyst for fostering critical thinking. Participants noted that stimulating students' natural inquisitiveness piqued their interest in subjects and issues. This curiosity, once ignited, inspired them to delve deeper into topics, ask probing questions, and actively seek out answers. It was acknowledged that an environment that encouraged curiosity was essential for the

intellectual development of students. In tandem with nurturing curiosity, participants underscored the importance of cultivating inquiry skills. These skills were identified as instrumental in the critical thinking process. Inquiry skills involve the ability to ask thoughtful and thought-provoking questions, research and analyze information and apply a systematic approach to problem-solving. By guiding students in developing these skills, educators were essentially empowering them to think critically. Inquiry skills equip students with the tools necessary to evaluate information, consider various viewpoints, and reach well-founded conclusions.

Promoting critical thinking at all levels of education is imperative due to its multifaceted benefits. It enhances problem-solving abilities and decision-making skills, equips individuals to be informed and engaged citizens, fosters adaptability and a love for lifelong learning, improves communication and collaboration, stimulates creativity and innovation, and enhances global competence. Critical thinking also contributes to higher-quality research, prepares individuals for diverse careers, encourages ethical decision-making, and ultimately empowers them to navigate the complexities of the modern world. It is a foundational skill that not only enriches academic pursuits but also molds responsible, agile, and thoughtful individuals who are capable of positively contributing to society.

The following are our recommendations based on the results:

- Teachers should establish a trusting environment that enables students to question information and remain vigilant against inaccurate or incomplete data.
- Teachers should promote a classroom culture where asking questions is not only allowed but actively encouraged. They should encourage students to challenge assumptions, seek clarifications, and explore topics in depth.
- Teachers should stimulate students' natural curiosity by selecting engaging and thought-provoking topics.
- Teachers should use real-world examples, current events, and relatable scenarios to ignite students' interest.
- Teachers should incorporate problem-solving exercises into the curriculum. These activities should encourage students to analyze, evaluate, and apply their knowledge to real-life situations.
- Teachers should organize regular discussion sessions where students can express their opinions and engage in respectful debates.
- Teachers should teach active listening skills, emphasizing the importance of genuinely understanding others' perspectives before responding. This helps students appreciate diverse viewpoints.
- Teachers should encourage students to explore subjects from multiple angles, connecting various disciplines to gain a comprehensive understanding of complex issues.
- Teachers should provide constructive feedback to guide students in improving their critical thinking abilities.
- Teachers should act as role models by openly discussing their thought processes and demonstrating how they analyze information.
- Academics should conduct engaging activities to help preservice teachers develop

critical thinking skills.

- Researchers should conduct experimental studies to encourage teachers, preservice teachers, and students to develop critical thinking skills.

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