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Teachers' Views and Strategies for Improving Children's Critical Thinking Skills*

Çocukların Eleştirel Düşünme Becerilerinin Geliştirilmesine Yönelik Öğretmen Görüşleri ve Stratejileri

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ABSTRACT

The study aimed to investigate preschool teachers' perceptions regarding the enhancement of children's critical thinking skills, as well as their employed strategies for fostering such skills. The study was designed as a case study, a qualitative model. The sample group consisted of 30 preschool teachers from Turkey. Data were collected using online interviews and examined using descriptive and content analysis. According to the preschool teachers, the study findings showed that Turkish-language and science-math activities are the activities that contribute most to improving children's critical thinking skills. Furthermore, the preschool teachers stated that they mainly used the strategy of asking open-ended questions during book reading activities and least used the strategy of promoting the interaction/collaboration among students to improve children's critical thinking skills.

Keywords: *Thinking skills, Preschool teachers, Critical thinking, High-level thinking, Preschool period*

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ÖZ

Bu araştırmada, çocukların eleştirel düşünme becerilerinin geliştirilmesine yönelik okul öncesi öğretmenlerinin algılarını ve çocukların eleştirel düşünme becerilerini geliştirmek için kullandıkları stratejileri belirlemek amaçlanmıştır. Bu amaçla yapılan araştırmada nitel model ve durum deseni kullanılmıştır. 30 okul öncesi öğretmeninin çalışma grubunu oluşturduğu araştırmada veriler çevrim içi görüşmeler aracılığı ile toplanmış, betimsel ve içerik analizi yapılarak değerlendirilmiştir. Araştırmanın sonucunda öğretmenlerin, çocukların eleştirel düşünme becerilerini geliştirmede en fazla katkı sağladığını düşündükleri etkinliklerin Türkçe-dil ve fen-matematik olduğu belirlenmiştir. Ayrıca öğretmenlerin çocukların eleştirel düşünme becerisini geliştirmek için en fazla kullandıkları stratejinin kitap okuma etkinliği sırasında açık uçlu sorular sorma olduğu; en az kullandıkları stratejinin ise öğrenciler arası etkileşimi/iş birliğini teşvik etme olduğu görülmüştür.

Anahtar Sözcükler: *Düşünme becerileri, Okul öncesi öğretmenleri, Eleştirel düşünme, Üst düzey düşünme, Okul öncesi dönem*

INTRODUCTION

Different disciplines have described critical thinking in various ways from past to present (Ennis, 1985; Facione, 1984; Lewis and Smith, 1993; Watson and Glaser, 1980). All these descriptions commonly put evaluation at the center of critical thinking. In addition, reasoning, judging/decision-making, and analysis are among skills considered necessary for critical thinking (Facione 1990; Ruggerio, 2019). Critical thinking is based on the evaluation of claims (Olson and Astington, 1993). It involves individuals' pursuit of valid and reliable information concerning directing their beliefs, decisions, and behaviors (Galinsky, 2019). The fundamental activities that are implemented in this period are research, interpretation, and judging, respectively. In the research process, individuals seek evidence, data that help them to answer key questions regarding the issue being investigated. In the process of interpretation, they decide what the evidence means. Comparatively, in the process of judging, they are supposed to reach a conclusion regarding the issue investigated (Ruggerio, 2019).

Possessing critical thinking skills gains more importance day by day. Therefore, how to equip individuals with that critical thinking skills remains on the agenda. Maturation alone is not sufficient for developing these skills, and the importance of environmental

factors in this regard is also emphasized (Tozduman Yaralı, 2019). In this respect, critical thinking is considered a matter of habit (Ruggerio, 2019). As the educational level rises, the demand for the demonstration of critical thinking also increases. However, there exists no specified age, including the preschool period, at which the initiation of critical thinking instruction is deemed premature. Furthermore, any subject determined by the teacher can be employed as a tool for teaching critical thinking (Facione, 2019).

Critical thinking is a skill that can be improved at all ages (Ruggiero, 2019). However, it develops over a long period. Therefore, early childhood experiences are of great importance (Tozduman Yaralı, 2019). From a developmental perspective, each experience is constructed on the previous one. The foundations of critical thinking as a high-level thinking skill are also based on the fundamental thinking skills attained during the early childhood period (Nosich, 2016). Related studies present examples of situations in which children could think critically and argue that children's critical thinking skills can be promoted with various methods and approaches (Aubrey, Ghent and Kanira 2012; Chandra, 2008; Davis-Seaver, Smith and Leflore 2003; Fernández-Santín and Feliu-Torruell, 2020; Heyman, 2008; Karadağ and Demirtaş, 2018; Tozduman Yaralı and Güngör Aytar, 2021).

The development of critical thinking in children is contingent upon their need to employ this mode of thought and the alignment of tasks with this necessity. In this context, it is crucial for teachers not only to serve as role models of critical thinkers but also to create conducive environments for children (Lewis & Smith, 1993). Costa (1985) identified some distinctive characteristics of critical thinking. These characteristics are building analogies between pieces of information; determining the relevance level and validity of the information that can be used to structure and solve problems; and finding and evaluating alternative solutions to a problem. In addition to these distinctive characteristics of critical thinking, some strategies are generally accepted by the related

literature (Beyer, 1985; Costa, 1985; Potts, 1994; Tama, 1989) for teaching critical thinking. These strategies are presented in figure 1.

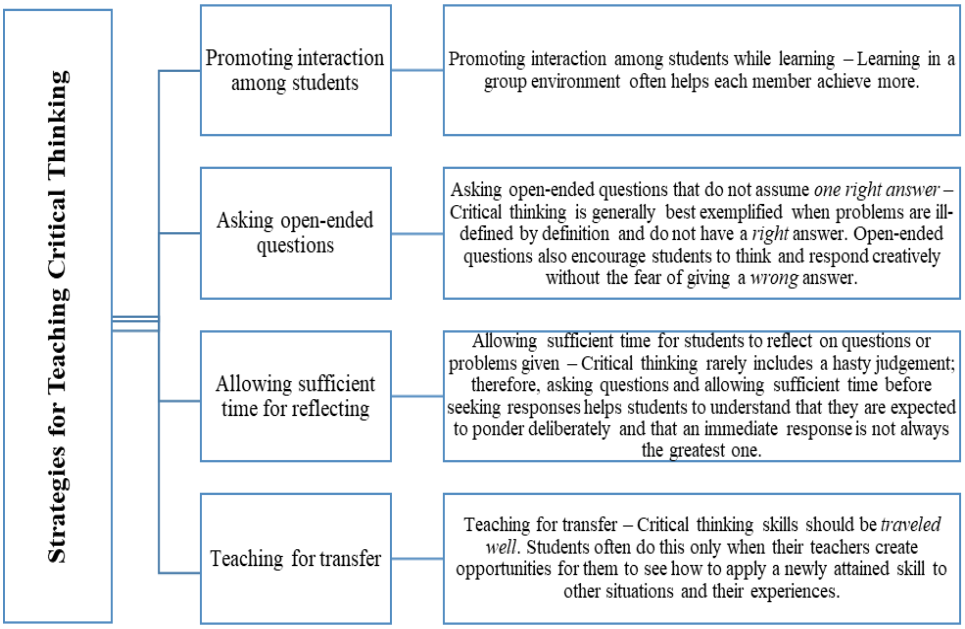

Figure 1. Strategies for Teaching Critical Thinking (Potts, 1994).

Views on teaching critical thinking skills become distinct in their perspectives (Hirose, 1992; Huitt, 1998; Sternberg, 1987). Nevertheless, they agree on directing children to ponder on authentic problems, requesting evidence-supported data by asking questions that are open to discussion, and ensuring sufficient time for students to give high-level responses to the questions posed.

The responsibilities of adults in terms of teaching strategies are indicated as the indicators of high-level thinking skills are determined as follows: Adults who support children's high-level thinking skills are responsive to children's needs, for example,

they tune in with ease when and when not to intervene; encourage children's self-belief through encouragement and appropriate praise; allow children to raise the autonomy of their own learning; make reference to prior learning to instruct new knowledge; use thinking language in a way that includes reflection, remembering, paying attention and listening; use a range of open-ended questions; give children time to talk and ask questions to each other; model thinking strategies; scaffold the children's learning through questions on what to do next, strengthen children's utterances with probing questions and participate with children during play; presents a array of play-based creative experiences for practice in order to promote decision-making, problem-solving, the use of imagination, and critical inquiry; and encourage children to make plans and perform them and observe children during play (Walsh, Murphy and Dunbbar, 2007).

The Current Study

In the information age, individuals are expected to select, evaluate and use accurate information, and possessing critical thinking skills is not an option to be used in teaching processes but an inseparable part of education. In this respect, the importance of methods and techniques that improve children's critical thinking skills are more understood. Educators, as the practitioners of these methods and techniques, play a crucial role (Gürkaynak, Üstel and Gülgöz, 2003; Kurnaz, 2013). Research indicates that teacher behaviors fostering critical thinking skills in children include encouraging thought, referencing previous learning, and recognizing the child's autonomy. (Walsh, Murphy and Dunbar, 2007). Therefore, the importance of guidance in fostering children's critical thinking is significant. (Chatzipanteli Grammatikopoulos, and Gregoriadis, 2014). Unfolding teachers' views on and practices for improving critical thinking is thought to serve as a reference for scientific studies to be conducted and guide methods and approaches to be developed in this regard. With all these in mind, the present study aimed to determine preschool teachers' perceptions of improving children's critical thinking skills and their strategies to improve children's critical thinking skills. The study sought an answer to these questions:

1. What are preschool teachers' views on critical thinking skills?

2. What are preschool teachers' views on teaching critical thinking skills?

3. What are preschool teachers' views on the factors that affect the improvement of critical thinking skills?

4. What strategies do preschool teachers use to enhance children's critical thinking skills?

METHOD

Study Design

The present study was designed as a case study, a qualitative model. Studies with a qualitative model use qualitative data collection methods such as interview, observation, and document analysis and follow a qualitative process to reveal a realistic and comprehensive portrait of events and perceptions in their natural settings (Yıldırım and Şimşek, 2016). The present study mainly focused on preschool teachers' perceptions of critical thinking and their strategies for improving critical thinking.

Participants

The present study participants comprised preschool teachers who teach 48–72 months old children in schools affiliated to The Ministry of National Education in İstanbul, Turkey. The purposeful and snowball sampling techniques were used for the participant selection. Due to the COVID-19 pandemic, teachers were contacted online, and the circle of participants was expanded using the snowball sampling technique that provides the enrichment of data by reaching a participant from another (Creswell, 2014). The snowballing process was stopped when 30 preschool teachers were reached. Data saturation (Merriam, 2015) was considered for determining the number of participants to be included. Table 1 presents the demographics of the preschool teachers who participated in the present study.

Table 1. Demographics of the Participants

Demographics Characteristics	Group	f	%
Age	20–29	7	23.33
	30–39	14	46.66
	40–49	7	23.33
	50–59	2	6.66
Professional experience	0–5 years	7	23.33
	6–10 years	2	6.66
	11–15 years	14	46.66
	16 years or above	7	23.33
Institution	Public School	30	100
Educational level	Associate Degree	3	10
	Bachelor's Degree	23	76.66
	Master's Degree	4	13.33
Place of work	District	9	30
	City Center	21	70
Education received on critical thinking	No education received	27	90
	Seminars	2	6.66
	In-service training	1	3.33

As seen in Table 1, 30 preschool teachers participated in the present study, and they are mainly in the 30–39 age group (f=14) and the least in the 50–59 age group (f=2). With the greatest frequency, they have a professional experience of 11–15 years (f=14) and work in the city center (f=21). All the participating preschool teachers work in a public institution (f=30), and almost all of them have received no education regarding critical thinking (f=27).

Procedures

A voluntary consent form was first sent to the participants' emails. The present study participants were reached online due to the Covid-19 pandemic, and the interview form

was e-mailed to the teachers. The link of the online interview form was further sent to them once they accepted to participate in the study voluntarily (Creswell, 2014). Permission was obtained from the participants to use the data obtained by the online interviews. It took around 20 minutes for teachers to answer the questions of the form.

Instruments

The present study used the 'interview form of teachers' views on and strategies for ımproving preschool children's critical thinking skills' that was developed by the authors of the present study. The authors designed the form as a semi-structured form that brings flexibility to ask relevant questions and provides in-depth knowledge on the subject examined (Merriam, 2015). Opinions of three experts, two on child development and one on preschool education, were consulted to ensure the content validity of the form designed. In line with the expert opinions, the form was revisited. With this semi-structured interview, the present study aimed to determine the preschool teachers' perceptions of improving children's critical thinking skills and their strategies to improve children's critical thinking skills. Of the questions on the interview form, six were about the participants' demographics (age, gender, educational level, etc.), and seven were about critical thinking skills. Some of the latter category questions are:

1. Which strategies do you think should an individual possess to think critically?

2. Which activity(ies) do you think is more favorable/contributes to improving critical thinking skills? Why?

3. Have you done any practices/activities to improve critical thinking skills? If yes, can you please state your views on these practices/activities?

4. Can you please describe the practices you have done to promote children's critical thinking skills along with examples?

The pilot application was carried out with two teachers. Two different researchers examined the form functionality in light of the pilot application data. With the pilot

application, the form was finalized, and it was proceeded to the next phase, the primary implementation.

Data Analysis

Content analysis was used for the analysis of the interviews made with the teachers and descriptive analysis for the interpretation and summarization of the data obtained according to the pre-determined themes. Before the data analysis, the present study's authors transcribed the interview forms and transferred them to the Microsoft Word software. Each participant was assigned with a number starting from one to 30. A framework was created for the data analysis using the related literature (Beyer, 1985; Costa, 1985; Tama, 1989; Potts, 1994). The categories of the strategies the teachers use to improve children's critical thinking skills were determined. According to the categories obtained, the interview data was organized within a certain systematicity. At this phase, importance was placed on being descriptors as much as possible and presenting the results obtained to readers at first hand. (Yıldırım and Şimşek, 2016). To ensure the systematicity described above in the analysis process, the results were presented in tables with respect to sub-headings that are: preschool teachers' views on critical thinking skills; preschool teachers' views on teaching critical thinking skills; and preschool teachers' views on the factors that affect the improvement of critical thinking skills. The analyses of the related questions were presented in the same table, which, therefore, helped the authors of the present study depict a holistic picture of the data analysis. In order to support the validity and reliability of the study, quotations from participant opinions have also been included (Patton, 2014). The teachers were coded as T1, T2, T3, etc., to represent teacher 1, teacher 2, teacher 3, and so on in the data analysis. Two different experts examined some of the data obtained. With this, the strategy of multi-rater triangulation was partially applied. Two independent raters separately examined and analyzed six randomly selected texts from the transcriptions according to the pre-determined themes. The frequencies of agreement and disagreement on the coding were determined, and the reliability level between the present study authors and the independent raters was calculated. Accordingly, the

reliability ratio was 94% using the reliability formula of Miles and Huberman (reliability=agreement / (agreement + disagreement)). A reliability ratio greater than or equal to 70% indicates that the reliability between raters is provided (Miles and Huberman, 1994).

Ethical Consideration

The research ethics committee approval of the present study was granted from the Non-Invasive Clinical Research Ethical Committee of Adnan Menderes University Faculty of Health Sciences Dean's Office on February 24, 2021, with the number E-92340882-050.04.04-11500. Teachers were informed about the study by sending the informed consent form. Written consents of the teachers who wanted to participate in the study were obtained and it was stated that the data obtained in the application process would not be used anywhere else and the process would proceed on a voluntary basis.

FINDINGS

To ensure the systematicity in the data analysis process, the present study results are presented in tables with respect to sub-headings that are: preschool teachers' views on critical thinking skills; preschool teachers' views on teaching critical thinking skills; and preschool teachers' views on the factors that affect the improvement of critical thinking skills.

Preschool Teachers' Views on Improving Critical Thinking Skills

This section includes the preschool teachers' views on improving critical thinking skills. Table 2 presents the skills the preschool teachers deemed necessary for critical thinking.

Table 2. Skills the Preservice Teachers Deem Necessary for Critical Thinking

Category	Codes	f	Participant Codes
	Curiosity, research, inquiry	15	T1, T3, T4, T10, T15, T16, T17, T21, T23, T24, T25, T26, T28, T29, T30
	Sophisticated	5	T5, T8, T12, T16, T27
Critical thinking	Showing empathy	4	T5, T7, T11, T26

skills	Objectivity	4	T1, T6, T18, T23
	Creative thinking	4	T5, T13, T14, T24
	Decision-making	4	T2, T3, T10, T15
	Problem-solving	3	T2, T15, T16
	Knowledge	3	T6, T7, T19
	Analysis	3	T6, T20, T24
	Open to improvement	3	T12, T14, T26
	Reasoning	3	T3, T13, T20
	Communication	3	T17, T22, T28
	Evaluation	2	T9, T24
	Using intuitions	2	T18, T26
	Foresight	1	T13
	Flexibility	1	T14
	Open-mindedness	1	T17
	Emotional intelligence	1	T8
	Respect for diversity	1	T1
	Making inferences	1	T24

As seen in Table 2, curiosity, research, and inquiry (f=15) are the leading skills the preschool teachers deemed necessary for critical thinking, which is followed by sophisticated thinking (f=5), creative thinking (f=4), showing empathy (f=4), objectivity (f=4), creative thinking (f=4), and decision-making (f=4), respectively.

Preschool Teachers' Views on Teaching Critical Thinking Skills

This section includes the preschool teachers' views on teaching critical thinking skills. Table 3 presents the activities the preschool teachers deemed more favorable to improving children's critical thinking skills.

Table 3. Class Activities the Preschool Teachers Deemed more Favorable to Improving Children's Critical Thinking Skills

Category	Codes	f	Participant Codes
Types of Activities	Language activities	20	T2, T4, T5, T7, T8, T11, T12, T13, T14, T16, T17, T18, T20, T22, T23, T24, T25, T27, T29, T30
	Science and math	16	T1, T5, T7, T8, T9, T12, T13, T15, T16, T17, T20, T24, T25, T26, T29, T30
	Play	15	T1, T3, T4, T7, T8, T10, T14, T15, T18, T19, T21, T24, T26, T28, T30
	Drama	12	T1, T6, T7, T8, T12, T14, T16, T18, T20, T24, T25, T26
	Art	11	T1, T4, T7, T8, T9, T10, T12, T17, T19, T23, T24
	Music	7	T7, T8, T10, T14, T18, T24, T28
	Preparation for reading-writing	5	T7, T8, T17, T24, T28
	Leisure	4	T6, T7, T8, T24

As seen in Table 3, Turkish-language activities (f=20) are the most favorable class activity to improve children's critical thinking skills, according to the preschool teachers. They secondly stated science and math activities (f=16) in this regard. Comparatively, leisure activities (f=4) are deemed the least favorable to improving children's critical thinking skills. Some excerpts of the preschool teachers' views on activities are:

…Drama activities contribute to children's critical thinking because children put themselves in someone's shoes in a drama. In such a process, questions like Why did you do this?; How did you feel?; How would you reach if it were you?;, etc. improve critical thinking skills in children. (T1)

…I think that art, play, and music activities create an environment of critical thinking most because, in these activities, children often tend to refuse the rules presented to them and add new rules. (T10)

Preschool Teachers' Views on the Factors That Affect the Improvement of Critical Thinking Skills

This section includes the preschool teachers' view on the factors that affect the improvement of critical thinking skills. Table 4 presents the factors that positively and negatively affect the improvement of children's critical thinking skills according to the preschool teachers.

Table 4. Factors that Positively and Negatively Affect the Improvement of Children's Critical Thinking Skills According to the Preschool Teachers

Categories	Codes	f	Participant Codes
Factors that Affect Positively	Families with high socioeconomic status	14	T5, T6, T7, T8, T9, T10, T11, T12, T13, T16, T17, T25, T27, T29
	Curiosity, creativity, inquiry and problem-solving skills in children	14	T3, T4, T8, T15, T16, T17, T18, T19, T20, T22, T24, T26, T27, T29
	Democratic climate that values the ındividual	9	T1, T3, T8, T10, T12, T23, T26, T28, T30
	Families that create opportunities for critical thinking	6	T2, T4, T6, T14, T24, T29
	Self-confidence of children	4	T5, T19, T22, T28
	Stimulus-rich environment	4	T20, T21, T24, T30
	Effective communication	4	T5, T12, T13, T22
	Increasing curiosity	3	T1, T15, T29
	Growing up with books	1	T22
Factors that Negatively Affect	Families with stereotypes and negative attitudes	10	T1, T4, T5, T8, T16, T18, T20, T23, T29, T30
	Families with low socioeconomic status	9	T3, T5, T6, T7, T9, T12, T17, T27, T29
	Domestic neglect and abuse	6	T9, T11, T12, T27, T28, T29
	Schools' financial impossibilities	5	T1, T3, T7, T17, T25
	Children's prior learning (false beliefs, etc.)	4	T19, T20, T22, T29
	Crowded classrooms	3	T7, T26, T29
	Management's or families' expectations (e.g., concrete products)	3	T8, T10, T20
	Curriculum/anxiety for	2	T8, T23

completing the curriculum on time		
Elements that are based on children's developmental characteristics (e.g., short attention span)	1	T13
Considerable differences in children's developmental characteristics	1	T8

As seen in Table 4, the curiosity, creativity, inquiry and problem-solving skills in children (f=14) and families with high socioeconomic status (f=14) factors are the leading factors that facilitate children's critical thinking, according to the preschool teachers. Comparatively, the preschool teachers most frequently stated the families with stereotypes (f=10) and families with low socioeconomic status (f=9) factors that negatively affect the improvement of children's critical thinking skills in a classroom setting.

Some excerpts of the preschool teachers' views on the factors that negatively and positively affect the improvement of children's critical thinking skills are:

…Situations like children with overly strict and stereotyped families, more than expected diversity in the developmental characteristics of children in a classroom setting, the anxiety for completing the curriculum on time, and parents' expectation of seeing a concrete product at the end of the day can hinder the attempts to improve critical thinking skills. (T8)

…I think it is more effortless to improve the critical thinking skills of children raised in families with high socioeconomic status. The fewer number of words—those used are content-wise restricted— in families with low socioeconomic status may affect the improvement of such skills; constant instructions, stop, don't do, or shut up, etc. (T13)

Table 5 presents the strategies the preschool teachers use to promote children's critical thinking skills and the places in which these skills are used.

Table 5. Strategies and Practices the Preschool Teachers Use to Promote Children's Critical Thinking Skills

Categories	Codes	f	Participant Codes
Promoting interaction among students	Leisure activities	3	T2, T3, T28
	Play activities	1	T19
	Book reading activities	15	T1, T2, T4, T8, T10, T11, T12, T13, T14, T16, T17, T18, T20, T23, T25
Asking open-ended questions	Science activities	6	T1, T8, T9, T16, T25, T29
	Leisure activities	4	T21, T23, T24, T28
	Field trips	1	T24
	Play activities	1	T30
Allowing sufficient time for reflecting	Science activities	4	T16, T20, T26, T29
	Leisure activities	1	T2
	Family participation practices	1	T5
	Drama activities	1	T8
	Field trips	1	T7
	Story activities	1	T22
	Art activities	1	T30
	Play activities	1	T30
Teaching for transfer	Drama activities	3	T1, T6, T10
	Leisure activities	2	T15, T16

As seen in Table 5, the preschool teachers mostly used the asking open-ended questions (f=27) strategy in book reading activities (f=15) to improve children's critical thinking skills. this strategy is followed by the allowing sufficient time for reflecting (f=11), teaching for transfer (f=5), and promoting interaction among students (f=4), respectively.

Some excerpts of the preschool teachers' views that indicate the strategies they use to improve children' critical thinking skills in terms of promoting interaction among students, asking open-ended questions, allowing sufficient time for reflecting, and teaching for transfer, respectively, are:

…I mostly try to improve critical thinking through talking in classrooms. While commuting to or from school, when at home, when out... When discussing past experiences, each child states his or her ideas and expresses them when there is something relatively wrong in their peers' behaviors or opinions. (T3)

…I ask children to predict the result before the experiment is carried out and justify their predictions. I give opportunities for them to explain their observations after the experiment. (T26)

DISCUSSION

The present study investigated the views of preschool teachers of 48–72 months old children on improving critical thinking skills and the strategies they use in this regard. According to the views of 30 preschool teachers who participated in the research, curiosity, research, and inquiry have been identified as the most crucial characteristics for critical thinking skills in individuals. In addition, the preschool teachers considered problem-solving, decision-making, creative thinking, and sophisticated thinking as skills that are necessary for critical thinking. Some studies in the related literature address critical thinking as a thinking domain different than creative thinking, problem-solving and decision-making skills (Bruning, Schraw and Ronning, 1995). Comparatively, some include the problem-solving concept in the critical thinking concept even though they do not use it to describe critical thinking (Ennis, 1985; Stenberg, 1999). The utilization of skills such as problem-solving in the process of critical thinking indicates that critical thinking, intertwined with many thinking skills, can be promoted and enhanced in various ways (Quinn, 1997). Williams Howe (2016) argues that unfamiliar problem situations promote children's thinking skills and urge them to perform sophisticated thinking. Furthermore, Williams Howe (2016) stated that providing children to see events from the lens of others and to talk about the others' emotions helps children have a sophisticated approach to events. It is, in this respect, a striking result of the present study that the preschool teachers stated showing empathy as one of the skills necessary for critical thinking.

Another result of the present study showed that Turkish-language and science and nature activities are most favorable to improving critical thinking skills in classrooms according to the preschool teachers. Comparatively, they considered leisure/free choice time activities as least favorable to improving critical thinking skills. The related literature states that children can mostly control critical thinking in learning processes; that it is enhanced in democratic and ill-structured environments; and that traditional school curricula limit the opportunities for forming thinking and intellectual relationships (Causey, 2016). Davis-Seaver (1994) in a study, examines the settings in which children use critical thinking skills and determines that they use these skills more out of school time. This situation can be interpreted as unstructured environments in the school setting, where children actively participate, may bring forth more critical thinking skills. The author of the study above explains this result with students' more active use of thinking skills out of school time and their control over their thinking processes at such times. Therefore, teachers are expected to use leisure time activities more effectively to improve children's critical thinking skills, in contrast with the result revealed by the present study. This is because leisure time actives create opportunities for making a selection, decision-making, and initiating and maintaining a task and providing collaboration in that task in ill-structured environments in which critical thinking skills are improved.

The preschool teachers who participated in the present study stated that they mainly use the asking open-ended questions strategy to improve children's critical thinking skills and primarily use this strategy in book reading activities. The related literature similarly indicates questions as an essential tool for attaining critical thinking skills (Facione, 2019; Galinsky and Gardner, 2016; Salmon, 2010). Evaluation is stated as the essence of critical thinking. In a critical thinking process, one tests claims/arguments and decide which ones are valuable or worthless. Therefore, critical thinking is a sort of research and pursuit to reach answers. Asking (inquiry) questions is one of the most essential techniques in a critical thinking process. Critical thinking activates questions to analyze events/cases (Ruggiero, 2019). Asking open-ended questions that do not assume one

right answer is considered particularly valuable to provide critical thinking. Open-ended questions also encourage students to think and answer creatively without the fear of giving a wrong answer (Costa,1985; Nosich, 2016; Tozduman Yaralı, 2019). Focione (2019) highlights that questions that require making solid interpretations, careful analyses, accurate evaluations, and thoughtful explanations should be asked for critical thinking. The preschool teachers stated allowing sufficient time for reflecting as the second main strategy to improve children's critical thinking skills. It is important in terms of critical thinking to allow sufficient time for students to reflect on questions asked or problems given. This is because critical thinking rarely includes hasty judgements; therefore, allowing sufficient time for reflecting before asking for responses to a question posed helps one offer this opportunity to children (Costa, 1985). The present study revealed a limited number of activities regarding the Promoting Interaction Among Students and Teaching for Transfer. However, collaboration and experience are essential for critical thinking opportunities in a classroom setting. Opportunities for experience facilitate students' adaptation of prior knowledge to new situations, while collaboration provides interaction among children (Costa, 1985; Kurnaz, 2013; Nosich, 2016). Studies conducted indicate that teachers play a crucial role for students to be critical thinkers. Students learn a lot from taking their teachers as models; therefore, it is vital to enhance teachers' competencies (Tan, 2017; Walsh and Paul, 1986). Tan (2017) identified the fundamental challenges for critical thinking in a study conducted with Singaporean teachers as the perceptions of teachers being authoritarian figures or knowledge transmitters, teachers' social expectations, and the perception that critical thinking involves adversarial elements. In the discussion of the relevant study, it is indicated that these findings situationally reflect the challenges for improving critical thinking in the Asian culture. The study mentioned above suggests using collaborative learning strategies and creating a safe learning climate (Tan 2017). Kurnaz (2013) also highlights the importance of collaboration in attaining critical thinking skills and recapitulates teachers' role in classrooms as studying with students in a pleasant climate of collaboration through encouraging students' participation and personal initiative.

The preschool teachers stated curiosity, creativity, ınquiry, and problem-solving skills in children and families with high socioeconomic status as the two factors that are most effective in promoting students' critical thinking skills, according to another result of the present study. Comparatively, the preschool teachers stated families with stereotypes and negative attitudes and families with low socioeconomic status as the factors that most negatively affect the improvement of critical thinking skills in classrooms. Potts (1994) argues that a physical and intellectual climate that promotes the spirit of exploration facilitates critical thinking in classrooms; in this respect, seating order is essential. A seating order in which students share the stage with the teacher, and everybody can see and interact with each other helps minimize the passive and receiver mode that many students adopt while interacting with the teacher (Potts 1994). The preschool teachers in the present study considered families' stereotypes as a barrier to teaching critical thinking skills. Similarly, the related literature also reports stereotypes as one of the most significant barriers to critical thinking (Elder and Paul 2003; Nosich 2016).

CONCLUSION AND SUGGESTIONS

This study found that Turkish-language and science-math activities are the activities that contribute most to improving children's critical thinking skills. Furthermore, the preschool teachers stated that they mainly used the strategy of asking open-ended questions during book reading activities and least used the strategy of promoting the interaction/collaboration among students least to improve children's critical thinking skills. Studies on the importance of teaching critical thinking skills increases day by day. Research in this area mostly indicates the use of various strategies to enhance critical thinking skills in young children (Dovigo 2016; Fernández-Santín and Feliu-Torruell 2020; Karadağ and Demirtaş 2018; Tozduman Yaralı and Güngör Aytar 2021). Therefore, due to diversified educational programs, philosophies, and policies, it is misleading to think of a single approach or program as being influential on critical thinking. Researchers and experts in this field agree that there is a need for democratic

and flexible climates to improve critical thinking skills in classroom settings (Chatzipanteli et. Al., 2014; Gürkaynak, Üstel ve Gülgöz, 2003; Kurnaz, 2013;). These recommendations can be made considering the long-term gains of critical thinking skills and research results:

- The fact that the participating preschool teachers have generally received no course or education on critical thinking points out the need in this regard. Therefore, the present study recommends including courses of critical thinking or thinking skills as elective courses in undergraduate programs for preservice preschool teachers and to deliver in-service training for professional development on critical thinking for teachers.
- The present study recommends addressing how to plan and carry out educational activities to improve children's critical thinking skills, how to use learning centers for this purpose, and how to provide family participation by programs that are prepared for preschool teachers on critical thinking such as in-service training, seminars, or webinars.
- This study presents findings obtained from data collected through 30 preschool teachers. Additionally, data were gathered through interview questions as the data collection tool. In future studies on this topic, more in-depth data collection can be achieved through mixed-method research with video recordings of learning processes designed to enhance children's critical thinking skills, ensuring triangulation of quantitative data.
- In future studies, conducting a survey could allow reaching a larger number of preschool teachers to determine whether they have received training on critical thinking. By planning an action research, the impact of the conducted study can be revealed.

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GENİŞ ÖZET

Amaç: *Enformasyon çağında bireylerden beklenen özellikler arasında doğru bilgiyi seçmek, değerlendirmek ve kullanmak yer almaktadır ve eleştirel düşünme becerisine sahip olmanın öğretim sürecinde kullanılabilecek bir seçenek değil, eğitimin ayrılmaz bir parçası olduğu belirtilmektedir. Bu açıdan çocukların eleştirel düşünme becerilerini geliştirecek yöntem ve tekniklerin önemi açıktır. Bu yöntem tekniklerin uygulayıcıları olarak eğitimcilerin rolleri büyüktür (Gürkaynak, Üstel ve Gülgöz, 2003; Norris, 1985). Öğretmenlerin eleştirel düşünmenin geliştirilmesi konusundaki görüşlerinin ve uygulamalarının bilinmesinin bu konuda yapılacak bilimsel çalışmalara referans olacağı, buna yönelik geliştirilecek yöntem ve yaklaşımlar konusunda rehberlik edeceği düşünülmektedir. Buradan hareketle bu araştırmada okul öncesi öğretmenlerin, çocukların eleştirel düşünme becerilerinin geliştirilmesine yönelik algılarını ve çocukların eleştirel düşünme becerilerini geliştirmek için kullandıkları stratejileri belirlemek amaçlanmıştır.*

Yöntem: *Çalışmaya başlamadan önce, araştırmanın etik kurul izni 'Aydın Adnan Menderes Üniversitesi Sağlık Bilimleri Fakültesi Dekanlığı Girişimsel Olmayan Klinik Araştırmalar Etik Kurulu'ndan alınmıştır. Araştırma nitel modelde durum deseni olarak yürütülmüştür. Bu çalışmada odaklanılan temel konu okul öncesi öğretmenlerin eleştirel düşünmeye yönelik algıları ve eleştirel düşünmenin gelişimi için kullandıkları stratejilerdir. Araştırmanın çalışma grubunu İstanbul'da MEB'e bağlı okullarda görev yapan 48-72 aylık çocuklara eğitim veren okul öncesi öğretmenleri oluşturmaktadır. Araştırmada amaçlı ve kartopu örnekleme tekniği kullanılmıştır. 30 öğretmenin dahil edildiği çalışmada katılımcı sayısının belirlenmesinde 'veri doyumu'na göre hareket edilmiştir (Merriam, 2015). Çalışmada araştırmacılar tarafından geliştirilen "Okul öncesi çocukların eleştirel düşünme becerilerinin geliştirilmesine yönelik öğretmen görüşleri ve stratejileri görüşme formu" kullanılmıştır. Form, konuyla ilgili olabilecek soruların sorulmasına esneklik sağlayan, ilgili alanda derinlemesine bilgi sağlama fırsatı veren yarı yapılandırılmış görüşme formu olarak tasarlanmıştır. Görüşme formunda yer alan 13 sorunun altısı öğretmenlerin kişisel bilgileri (yaş, cinsiyet, mezuniyet vb.) ile ilgili olup, yedi soru ise eleştirel düşünme becerileri ile ilgilidir. Araştırmada öğretmenlerle yapılan görüşmelerin değerlendirilmesinde içerik analizi ve elde edilen verilerin daha önceden belirlenen temalara göre yorumlanması, özetlenmesi sürecini içeren betimsel analiz kullanılmıştır. Araştırma konusuyla ilgili literatüründen (Beyer, 1985; Costa, 1985; Potts, 1994; Tama, 1989) yararlanılarak veri analizi için bir çerçeve oluşturulmuştur ve öğretmenlerin çocukların eleştirel düşünme becerilerini desteklemek için kullandıkları stratejilere ilişkin kategoriler belirlenmiştir. Elde edilen kategorilere göre, görüşme verileri belirli bir sistematik içerisinde düzenlenmiş ve bu aşamada mümkün olduğu kadar tanımlayıcı olmaya ve elde edilen bulguları ilk elden okuyucuya sunmaya önem verilmiştir (Yıldırım ve Şimşek, 2016). Analiz sürecindeki sistematikliği sağlamak için; "okul öncesi öğretmenlerin eleştirel düşünme becerisine yönelik görüşleri", "okul öncesi öğretmenlerin eleştirel düşünme becerisinin öğretimine yönelik görüşleri" ve "okul öncesi öğretmenlerin eleştirel düşünme becerisinin geliştirilmesine etki eden faktörlere ilişkin görüşleri"*

şeklinde alt başlıklar kullanılarak tablolar halinde verilmiştir. Birbiriyle ilişkili soruların analizleri aynı tabloda verilerek bütünlük sağlanmaya çalışılmıştır.

Bulgular: *Yapılan değerlendirmede, okul öncesi öğretmenlerinin, eleştirel düşünme için gerekli olduğunu düşündüklerin becerilerin başında merak, araştırma ve sorgulama gelmektedir. Bunun yanı sıra öğretmenlerin problem çözme, karar verme, yaratıcı düşünme, çok yönlü düşünme becerilerini eleştirel düşünme için gerekli beceriler olarak gördükleri belirlenmiştir. Araştırmada elde edilen diğer bir bulgu, öğretmenlerin sınıf içinde eleştirel düşünme becerisini geliştirmeye en uygun olduğunu düşündükleri etkinliklerin Türkçe-dil ile fen ve doğa etkinliği olduğunun, en az katkı sağladığını düşündükleri etkinliğin ise serbest zaman etkinliği olduğunun belirlenmesidir. Araştırmanın diğer bir bulgusunda, çalışmaya katılan öğretmenlerin çocukların eleştirel düşünme becerisini geliştirmek için en fazla kullandıklarının stratejinin 'açık uçlu sorular sorma' olduğu ve bu stratejiyi kullandıkları yerin daha çok kitap okuma etkinlikleri olduğu belirlenmiştir. Araştırmanın bir diğer bulgusuna göre, öğretmenler çocukların eleştirel düşünme becerilerini teşvik eden faktörlerden en fazla etkinin çocuktaki merak, yaratıcılık, sorgulama ve problem çözme becerisi ile üst sosyoekonomik düzey grubundaki aile faktörü olduğunu belirtmişlerdir.*

Tartışma ve Sonuç: *Araştırmanın sonucunda öğretmenlerin, çocukların eleştirel düşünme becerilerini geliştirmede en fazla katkı sağladığını düşündükleri etkinliklerin Türkçe-dil ve fen-matematik olduğu belirlenmiştir. Bu sonuçla birlikte öğretmenlerin eleştirel düşünme için en fazla gerekli olduğunu düşündükleri becerinin bireydeki merak, araştırma ve sorgulama olduğu görülmüştür. Ayrıca öğretmenlerin çocukların eleştirel düşünme becerisini geliştirmek için en fazla kullandıkları stratejinin kitap okuma etkinliği sırasında açık uçlu sorular sorma olduğu; en az kullandıkları stratejinin ise öğrenciler arası etkileşimi/iş birliğini teşvik etme olduğu belirlenmiştir. Eleştirel düşünme becerisinin öğretiminin önemine yönelik çalışmalar her geçen gün artış göstermektedir. Yapılan araştırmalar incelendiğinde özellikle küçük çocukların eleştirel düşünme becerilerini geliştirmek için farklı yöntem ve tekniklerden yararlanıldığı belirlenmiştir (Dovigo, 2016; Fernández-Santín ve Feliu-Torruell, 2020; Karadağ ve Demirtaş, 2018; Tozduman Yaralı ve Güngör Aytar, 2021). Dolayısıyla çeşitli eğitim programları, felsefeleri ve politikaları bulunduğundan eleştirel düşünme üzerinde tek bir yaklaşımın ya da programın etkili olacağını düşünmek yanıltıcı olacaktır. Bu konuda çalışan araştırmacıların ve uzmanların hemfikir olduğu nokta sınıf ortamında eleştirel düşünme becerisinin gelişebilmesi için demokratik ve esnek eğitim ortamlarına ihtiyaç olduğudur.*

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The first author contributed 50% and the second author contributed 50% to this article.

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Conflict of Interest

The researchers do not have any personal or financial conflicts of interest with other individuals or institutions related to the research.

Ethics Committee Declaration

The data in the article has been obtained in accordance with scientific ethical principles, and references have been cited. This study was conducted with the approval of Adnan Menderes University Ethics Commission dated 24.02.2021 and numbered E-92340882-050.04.04-11500.