

## Evaluation of preschool teachers' chess learning and teaching experiences

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### Abstract

Chess, which is a game of intelligence and sports that has been played for centuries, is increasingly important, and many countries are trying to popularize it as an educational tool or sport in schools. In this qualitative study, preschool teachers' experiences of learning the game of chess, their evaluations of these experiences, their teaching practices in preschool classes after learning the game, their self-evaluation, and educational support needs were investigated based on the opinions of teachers. The study was carried out with 12 preschool teachers determined by purposive sampling method in the spring term of 2020. The study was conducted face-to-face with a semi-structured interview form. The descriptive analysis method was used in the analysis of the data obtained from the interviews. The participants believed that they needed educational support in teaching chess. The results will be useful in terms of organizing preschool chess teaching program content and practices in a way that will form the basis for the game.

**Keywords:** Chess; learning; preschool; teacher activity; teaching experience.

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## 1. Introduction

According to the International Chess Federation-FIDE (FIDE, 2023), the game of chess is “a game played by moving chess pieces (figures) in a certain order between two opponents on a square-shaped area characterized as a chessboard. The goal of both sides is to checkmate the opposing king. The side that is checkmate loses the game. If mate is not possible for both sides, the game ends in a draw.” It can be said that chess is widely seen as a brain training, intelligence game, science, and art. This game, whose tournaments are organized around the world, is also accepted as a sport. Activities related to this game are carried out internationally by FIDE. Chess is a game that can be learned and played by people of all ages, can continue as long as they want, and the opponent can be of any age (Blanch 2020; Maschler et al., 2020; Heritage Christian Academy, n.d.). It should also be considered as an educational tool that enables learning through play (Mendez, 1988), and also a game that helps to improve cognitive impairment and depression (Nakao 2019).

While chess was taught as part of the curriculum in nearly 30 countries in all public schools in Venezuela, Iceland, Russia, and other countries in 1990 (Linder, 1990), in recent years, in Western countries, correcting the poor performance of students in mathematics, including general cognitive abilities such as reading and intelligence. seen as a way of improving academic subjects. Chess-related research and education projects continue in the United Kingdom, Spain, Turkey, Germany, and Italy, among other countries (Sala and Gobet, 2016).

In Turkey, national and international activities are carried out by the chess federation. With the establishment of the Turkish Chess Federation -TCF in 1954, the development of chess in the country accelerated (Turkish Chess Federation, 2012). TCF organizes coaching courses at various levels through provincial representations and clubs and gives "trainer" certificates. Those who have a coaching certificate, on the other hand, train athletes by giving chess courses and participating in tournaments (Turkish Chess Federation, 2023).

Ministry of National Education (ME) and TCF signed and implemented protocols for the dissemination of chess in schools. One of them is the agreement on June 2, 2005, which included the inclusion of chess in the curriculum as an elective subject in primary schools. It has been emphasized by the parties that there is a need for approaches and practices that will form the basis of these studies (Turkish Chess Federation, 2023). The next step is for kindergarten and nursery classes.

Collaboration for preschool chess teaching was achieved with the protocol signed between TCF and ME on December 9, 2016. Thus, chess will be included in the kindergarten curriculum and the teaching will be done by TCF coaches with a visa. TCF will also provide the training of teachers who will teach chess. Studies have been initiated on important issues such as the chess curriculum and the preparation of educational materials. The federation has provided as many chess sets and clocks as the class size to the kindergartens that have reserved a classroom for chess activities. He also gave chess courses to preschool teachers within ME (Turkish Chess Federation, 2016). The two institutions set the teacher criteria for teaching chess in their next training protocol.

Regarding the training of trainers in TCF and ME in 2017, it was decided to assign only teachers with TCF coaching certificates in the courses given within the ministry for practices such as chess lesson exercises and club activities in all institutions affiliated with ME (Turkish Chess Federation, 2017). Thus, other institutions were prevented from giving chess courses or certificates. These

developments in Turkey follow in the literature (Jankovic & Novak, 2019), the initiatives of the European Parliament Declaration in 2012 to start a "chess in schools" program with the support of member states. In addition, it meets some criteria mentioned in the FIDE-ECU-European Chess Association research report (Hall & Nash, 2021) and strives to improve its studies.

### **1.1. Literature review**

It is understood that more and more schools around the world value chess, as this game has become a part of the standard curriculum (Joseph et al., 2016). Schools in various countries (USA, France, Argentina) offer chess and other board games as elective courses, and some even suggest a compulsory course (Sala & Gobet, 2017; Von Wangenheim et al., 2019). Research conducted in various countries on the academic benefits of chess (Christiaen, 1976; Linder, 1990; Marguiles, 1991) dates back many years. As a result of research in Belgium (Christiaen, 1976), it was revealed that the academic achievement of the group that took basic chess lessons was higher than the group that did not take these lessons. In Venezuela, a project on learning to think in 1979-1983 found that teaching chess to second-year students in a methodical way increased the IQ of all junior students. In the following years, chess lessons started to be given in schools (Linder, 1990).

There are different evaluations of the benefits of chess education in schools. Some studies and conference presentations (Christiaen and Verholfstadt, 1978; Liptrap, 1998; Bart and Atherton, 2004) reported that they reached results that support the educational benefits of chess training. Gobet and Campitelli (2006), who reviewed these studies, agree with the results of Groot's (1977; 1978) study that improvements such as attention, concentration, and interest in learning are low-level gains in chess education, while improvements in intelligence, academic achievement, and creativity are high-level gains. considered to be similar. Other studies supporting Groot's view (Bilalić et al., 2007; Waters et al., 2002) have concluded that there is little support between the intelligence and chess skills of proficient junior chess players.

Contrary to the research results that chess education provides a modest educational benefit (Gobet & Campitelli, 2006; Sala & Gobet, 2017), studies confirming the benefits of this game (Aciego et al., 2012; Kazemi et al., 2012; Sala et al., 2015; Trincherro, 2013) support the view that it has positive cognitive effects on students of normal school age. Most educators who question the concept of general intelligence do not accept the point of view of chess masters that the game improves general intelligence, self-control, analytical skills, and concentration skills (Marguiles, 1991). The most important advantage of using chess as a formal or non-formal learning tool in education is that its benefits can be provided during the game, which is very valuable in preschool and visual perspective-taking (Jankovic & Novak 2019; Gao et al., 2019).

In preschool and primary school children, the formation and development of logical thinking takes place actively in the game process (Belova, 2018; Almås et al., 2023; Videnovik et al., 2023). In his study, Horgan (1987) emphasizes that the way children acquire skills is fundamentally different from adults and that natural abilities should be emphasized and thought processes should be focused on in teaching. Working with chess masters and teacher-coaches (Marguiles, 1991), it was determined that chess participation improves reading performance, and further research is recommended to confirm this result and help understand the power of playing chess.

Studies on chess in preschool in Turkey have shown that chess teaching affects children's cognitive and social development (Akay, 2017), attention development (Akar, 2021), attention-gathering skills (Tatlıpınar & Serçe, 2019), problem-solving skills (Çubukçu & Kahraman, 2018), creativity and theory of mind skills (Sığırtmac, 2012), and primary school readiness (Kaynar 2014). The study, which reveals the views of children (Gunes & Tugrul, 2017), is about how they evaluate chess. The only study (Şahin & Yıldırım, 2022) reached for preschool teachers in Turkey is the evaluation of ME's Chess Curriculum for the preschool period.

### **1.2. Purpose of study**

In the current studies, there is no attempt to focus on preschool teachers' chess learning and teaching experiences, and to address preschool teachers' evaluations of chess learning and coaching certification processes and course program content, their practices and methods in teaching chess to preschool children, and their needs for supportive education in preschool chess teaching. This study focuses on determining the evaluations of preschool teachers about chess learning processes and course content, what their evaluations are about the course program, what methods and materials they use in preschool teaching and practices, and their needs for supportive education in preschool chess teaching.

## **2. Materials and methods**

In this study, a case study, which is one of the qualitative research methods, was used to determine the views of teachers teaching chess in pre-school on obtaining a trainer certificate and their practices in their classrooms. Qualitative research aims to deal with events in their natural environment realistically and holistically. In this method, meanings are important because the experiences of the participants are examined in depth. To solve the problem, a research question is created, and an answer is sought with the inferences obtained from the analysis of the collected data (Yıldırım & Şimşek, 2016). The research was designed with a case study. The case study is a deeply grounded qualitative research approach that tries to describe the events that occur in the researcher's natural conditions richly by using various data collection tools (observations, interviews, audio-visuals, documents, reports) under the constraints of time and space (Creswell, 2007; Hancock & Algozzine, 2006).

### **2.1. Participants**

Criterion sampling, one of the purposive sampling methods, was used to determine the study group of the research. Purposeful sampling is the selection of information-rich situations in the context of the purpose of the study to conduct in-depth research. Criterion sampling is the creation of a sample from people, events, objects, or situations with the qualities determined by the problem (Yıldırım & Şimşek, 2016). The criterion here is to teach chess in preschool and to have the necessary qualifications for this. This research was conducted with teachers working in preschool classes of 12 public kindergartens and primary schools in Ordu city center in the 2019-2020 academic year. 12 teachers voluntarily participated in the study. The potential participant group is limited to teachers who teach chess in preschool. These participants were defined by demographic information.

Teachers were asked questions about their profession, place of work, work experience, obtaining a chess teaching certificate, presence of chess sets in their classrooms, age group they teach, and the situation of organizing chess activities at school. Table 1 presents the characteristics

of the 12 teachers in the study. Eleven of the participants are pre-school teachers and one is a social studies teacher. Five teachers work in the kindergarten, and seven teachers work in the kindergarten in the primary school. All of the teachers are bachelors, eight of whom are female and four are male. Seven of the teachers are between the ages of 25-35, and five of them are between the ages of 36-45. Their working experience is three teachers between 1-7 years and nine teachers between 10-16 years. All teachers have a chess teaching certificate. The age group where chess is taught is five and five-six years old.

**Table 1**  
*Demographics of participants*

Participant	Years old	Gender	Educational status	Profession	Working experience	Position	Teaching group
T1	27	Male	Bachelor	Preschool teacher	4	Preschool	5-6 age
T2	30	Female	Bachelor	Preschool teacher	7	Nursery class	5-6 age
T3	35	Male	Bachelor	Preschool teacher	10	Nursery class	5-6 age
T4	37	Female	Bachelor	Preschool teacher	12	Preschool	5 age
T5	25	Male	Bachelor	Preschool teacher	1	Nursery class	5-6 age
T6	40	Female	Bachelor	Preschool teacher	14	Preschool	5 age
T7	34	Female	Bachelor	Preschool teacher	10	Preschool	5 age
T8	34	Male	Bachelor	Preschool teacher	10	Nursery class	5-6 age
T9	38	Female	Bachelor	Preschool teacher	10	Nursery class	5-6 age
T10	29	Female	Bachelor	Preschool teacher	7	Preschool	5 age
T11	41	Female	Bachelor	Preschool teacher	16	Nursery class	5 age
T12	39	Female	Bachelor	Preschool teacher	12	Nursery class	5-6 age

## 2.2. Data collection tools

After the data collection tool was developed by the researcher, it is an interview form in which expert opinion is taken in terms of its suitability and applicability for the research. The interview form consists of semi-structured and open-ended questions, questions about personal information, and research topics. Necessary arrangements were made by taking the opinions of three field experts in the field of educational sciences and two field experts who knew the game of chess in the preschool field.

Interview questions, what are the evaluations of the teachers about the chess activities carried out in the school where they are assigned, what is the level of the chess teaching/training documents, which institutions they have obtained, and what is the content and duration of the course program, the teaching method and materials of the practices in which they teach chess in their classes and schools, age, group, duration. It is designed to reveal the answers to what their evaluations are about the method they use in chess teaching, and if they need support education about chess teaching in the preschool period, what is the content of their needs. Table 2 presents the specific questions asked during the interview.

**Table 2**  
*Interview Question*

1. What is the level and full name of your chess document?
2. From which institution did you get your chess certificate? What is the duration of the training/course?

3. What did you learn in the Chess Training/course?
  4. An application/activity for teaching chess etc. in your school. is there? If yes, do you find this teaching effective? Why?
  5. What is the age group, duration/range, and total duration of your practice for teaching chess in your classroom or school?
  6. How do you teach chess? What is your program duration, materials, and teaching method?
  7. Do you think your methods and practices are effective for teaching chess in preschool? Why?
  8. Do you need support education about teaching chess in preschool period? Why?
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### **2.3.Procedure**

We conducted a pilot study with two preschool teachers who have chess teaching certificates. In the pilot application, the clarity of the questions was evaluated, and the interviews started after the final arrangement of the form. We conducted semi-structured interviews with each of the twelve teachers. The interviews were held in an empty room at the schools where the teachers were assigned, by making an appointment. Each interview session with the teachers lasted between 30 and 35 minutes. Before the interview questions, we informed the teachers about the purpose of the research. Teachers agreed to participate in the research voluntarily.

We collected the data for the research with a face-to-face interview technique. Interviewing is frequently preferred by researchers as it provides in-depth information on the subject studied. The interviews were recorded in writing. The privacy of the participant was protected by coding each interview form as T1, and T2.

### **2.4.Analysis of Data**

Descriptive methods were used in the analysis of the data. In the descriptive analysis, it is essential to understand and present the data related to the problem under the theme, category, and sub-theme, with direct quotations from interview transcripts, document texts, and observation notes. The main thing in descriptive analysis is to reveal which participant said what about any theme as it is, without commenting. Here, at the same time, it is essential to analyze, in other words, to describe with direct quotations related to the relevant theme in a way that will increase the internal validity of the research (Günbayı, 2019).

The data related to the subcategories were read and marked many times. The main categories were searched by reading the marked sub-categories many times. These categories were examined, and themes were defined and rearranged. While determining the themes, research questions were used. In the final stage of data analysis, excerpts from teacher interviews were selected to support the themes and categories. The literature emphasizes the coding of the collected data (conceptualized), and then the determination of themes by arranging the relationships between these codes logically.

### **2.5.Ethics**

All ethical considerations were made to ensure that the participants willingly participated in this research. All permissions were also sought from the right authorities.

### 3. Results

**Table 3**

*Theme, category, and subcategories of the research*

Themes	Category	Subcategory
Chess teaching competence	Chess course and certificate	chess document level
		Institutions organizing courses/training
	Course/teaching content	Course/instruction time
		chess game material
Teaching chess in preschool	Target group and program	figures of the game
		Basic rules of the game/characteristics of the figures
		Special rules of the game
	teaching method	Age group
		weekly lesson hours
		The total time
Evaluating chess practices	school practices	teaching environment
		Utilized resources
	Teachers' practices	Materially
		Practices content
Need for educational support	Effective	
	Not effective	
Support training requirement	Effective	
	Not effective	
No support training requirements	Support training requirement	
	No support training requirements	

In Table 3, a total of three themes, seven categories, and twenty sub-categories revealed in the research are seen.

#### **3.1. Theme 1: Chess teaching competence**

The 1st Theme created as a result of the analysis of the data of the research is “Chess teaching competence” and includes the categories of “Chess course and document” and “Chess course program content”. The “Chess course and certificate” category includes three sub-categories, these are “Chess certificate level”, “Chess certificate Course issuing institutions” and “Chess Course teaching method and duration”. Table 4 presents this category and subcategories for research questions 1 and 2.

**Table 4**

*Information on teachers' chess documents*

Category: Chess course and certificate			Subcategories			
Participants	Document date	Chess document level	Institution providing	Course teaching method and duration		
				Method of teaching	Total days	Total hours



T1	2018	Mind and Intelligence Games Certificate program	state university	Online	6 weeks	80 hours
T2	2017	Level 1, Beginner chess course program	Provincial Directorate of ME	Face to face	1 week	30 hours
T3	2015	Level 1, Beginner chess course program	Provincial Directorate of ME	Face to face	1 week	30 hours
T4	2016	Level 1, Beginner chess course program	Provincial Directorate of ME	Face to face	1 week	30 hours
T5	2018	Tier 1, Chess Assistant Coaching	Provincial Representative of TCF	Face to face	2 weeks	30 hours
T6	2010	Tier 1, Chess Assistant Coaching	Provincial Representative of TCF	Face to face	2 weeks	30 hours
T7	2011	Tier 1, Chess Assistant Coaching	Provincial Representative of TCF	Face to face	2 weeks	30 hours
T8	2018	Level 1, Beginner chess course program	Provincial Directorate of ME	Face to face	1 week	30 hours
T9	2017	Level 1, Beginner chess course program	Provincial Directorate of ME	Face to face	1 week	30 hours
T10	2019	Level 1, Beginner chess course program	Provincial Directorate of ME	Face to face	1 week	30 hours
T11	2015	Level 1, Beginner chess course program	Provincial Directorate of ME	Face to face	1 week	30 hours
T12	2017	Level 1, Beginner chess course program	Provincial Directorate of ME	Face to face	1 week	30 hours

Table 4 shows the year the teachers acquired the chess certificate, the way and level of obtaining the certificate, the institution where the certificate was obtained, the method of learning the chess game, and the duration of the chess game learning course. According to the table, all teachers have the chess course certificate. The dates of obtaining chess documents are the period covering the years 2010- 2019.

The teachers obtained their chess certificates by attending courses held in three different institutions and successfully in the exam held at the end of the course. Eight of the preschool teachers showed their chess documents by attending the chess course of the Provincial Directorate of National Education, three of them by the 'Turkish Chess Federation-TCF Provincial Representative', and one teacher by attending the "Mind-Intelligence Games-Chess Instructor Training" course organized by the state university through distance education, has acquired.

Those who are successful in the course organized by the Provincial Directorate of National Education, "1 Level, Beginner level chess course program", "Those who are successful in the course organized by TCF Provincial Representative, "1 Leveled Chess Assistant Coach" certificates. The "Mind-Intelligence Games-Chess Instructor Training" certificate was provided in the course organized by the state university. The content of these three different course programs is the same, and the basic rules of the game of chess are taught.



These documents enable teachers to participate in chess tournaments by learning the game of chess, teaching, and practicing with children. As an example of the teachers' sentences on this subject, T5- "1 Level. Chess Coaching Certificate, Provincial Representative of the Turkish Chess Federation, I took a total of 30 hours of courses in two weeks" and T10- "Beginner level. We did not take separate courses for each education level. We took a 30-hour general knowledge course. I did not receive a separate education for pre-school".

The total duration of each chess course, organized by the TCF and the provincial directorate of national education, was 30 hours and was conducted with face-to-face teaching. The chess course program of the state university was given about 80 hours with a series of games within the scope of mind games and was carried out with distance education. The teachers said that the provincial national education directorate course was completed in one week and the TCF course was completed in two weeks. The provincial directorate of national education organized the chess course with an intensified program, according to the provincial representative of TCF. Regarding these, T12 explained, "The course lasted a week, it was 30 hours in total". T6, on the other hand, shows that the total hours of the course in the two institutions are the same with the sentence "I took the course from TCF, it took two weeks, it was about 30 hours in total".

The second category of Theme 1, "Course program content" and its sub-categories, are "Chess game material", "Game figures", "Basic rules of the game/characteristics of figures" and "Special rules of the game". For research question 3, ME and TCF present the general content and subcategories of chess course programs (Table 5).

**Table 5**

*Contents of ME and TCF Chess course program*

Category: Ministry of National Education "1. Level Beginner" chess course program content	Category: TCF "1. Level, Assistant Coaching" course program content
1. Let's Get to Know Chess	1. Definition of chess,
2. Let's Get to Know the Chessboard and Pieces	2. Chess history, development,
3. Stones and Their Movements	3. Movement of stones
4. Asking for Stones, Taking, Offense and defense	4. Special moves (castling, promotion of pawn)
5. Checking and Checkmate	5. The value of the stones,
6. Special Rules	6. Touched stone rule,
7. Values of Stones and Stone Exchange	7. Arrangement of pieces and chessboard (horizontal, vertical, diagonal, king and queenside, center squares, square name, notation)
8. Basic Mats	8. mat and pat
9. Opening Principles	9. Basic mates (Queen's mate, Rook's mate, Two-bishop's checkmate, Horse-bishop's checkmate)
10. Notation and Match Training	
11. General Review and Evaluations	

Source: MEB Özel Öğretim Kurumları Genel Müdürlüğü (2021); Belgeler, (2023).

According to the teachers' answers to the course content, the ME chess course program and the TCF chess course program have the same content. In the course program, the teachers said that they received information about the brief history of chess, its benefits for the child, the figures of the chess game, the features of the figures and their functions in the game, the general and special rules of the game, and the rules of the chess match. The information was supported by using visual-weighted slides and videos.

All the teachers stated that the chess course was given in the form of a slide presentation, they did not see a chess set during the course and they did not practice, they only received theoretical information. One teacher said (T4), "I only took this chess course without touching a piece. We made an application on the smart board". The literature (MEB Özel Öğretim Kurumları Genel Müdürlüğü, 2021; Belgeler, 2023) shows that the chess introductory and first-level course program contents of the two institutions are similar.

### 3.2. Theme 2: Teaching chess in preschool

The categories and sub-categories for teachers' preschool chess teaching are presented in Table 6 and Table 7 presents chess teaching in preschool for research questions 4 and 5.

**Table 6**

*Categories and sub-categories related to teachers' preschool chess curriculum*

Category	Subcategory
Target group and program	Age group
	Weekly lesson hours
	The total time
	Teaching environment
	Utilized resources
teaching method	Materials
	Application content

Table 6 shows two categories and their subcategories. Teachers' chess teaching programs, contents, resources, application environments, materials, and teaching time allocated to the age group are seen.

**Table 7**

*Information on the target group and program of teachers' chess teaching*

Participants	Teaching group	Weekly course hours	Total time	Teaching environment	Source	Material
T1	5-6 age	one lesson hour	12 weeks	chess class	chess course slides	chess set
T2	5-6 age	one lesson hour	12 weeks	chess class	chess starter book	chess set
T3	5-6 age	five days, one lesson time	6 months	chess class	chess starter book	chess education clipboard
T4	5 ages	one lesson hour	7 weeks	Preschool class	chess videos	chess education clipboard
T5	5-6 age	one lesson hour	7 weeks	Preschool class	chess course slides	Chessboard and chess pieces

T6	5 ages	Three days, two lesson hours	6 months (168 hours)	chess class	chess starter book	Chess set and Chess training clipboard
T7	5 ages	one lesson hour	12 weeks	Preschool class	chess course slides	Chessboard and chess pieces
T8	5-6 age	one lesson hour	12 weeks	Preschool class	chess starter book	chess set
T9	5-6 age	one lesson hour	12 weeks	Preschool class	chess course slides	Big first, then small chess pieces
T10	5 ages	Three days, two lesson hours	6 months (168 hours)	chess class	chess course slides	Chessboard and chess pieces
T11	5 ages	Three days, two lesson hours	6 months (168 hours)	chess class	TCF preschool chess teaching booklet, Course slides	Chessboard and chess pieces
T12	5-6 age	Three days, two lesson hours	6 months (168 hours)	chess class	Cartoons about chess	chess pieces

According to Table 7, teachers teach chess with 5 and 5-6 age groups. They teach and practice each group for a total of 1 to 6 hours per week. Weekly teaching is carried out once three or five times. Total teaching time ranges from 12 weeks to six months. A lesson hour is determined as 40 minutes. These periods are organized by the provincial directorate of national education within the scope of "extracurricular activities" in preschool. Accordingly, it is limited to a maximum of six hours a week, and the practice continues throughout the academic year.

T11 states that the national education directorate provides incentives and support for chess teaching. *"It is opened as an exercise at school. Free for students. We are given additional lessons as much as the lesson we entered."* Regarding the implementation period, *"Note: the duration is 40 minutes for 1 lesson, I think 40 minutes is a long time in the preschool group. I think 30 minutes will be enough,"* he explained. The majority of teachers teach in the school's chess class. Others use the preschool classroom. All the teachers said that there is a chess set in their classroom...T11.

The second category, "Teaching method", consists of sub-categories of resources, materials, and application content that teachers use in teaching chess. The majority of teachers use course slides and the "Chess starter book" as a source in their chess teaching. It also makes use of cartoons and videos about chess. Teachers mostly used the chess set, followed by the chess training board (hanging the chessboard on the wall and attaching two-dimensional figures) as material. *"I make use of the chess starter book and plan my education accordingly. In addition, I support the chess education board, explain the lesson, and practice. In addition, I teach chess-related games and nursery rhymes and puzzle songs" ...*(T6).

While the teachers were creating the chess teaching application content, they used digital elements and concrete materials together in preschool chess teaching. Regarding this, a teacher said, *"I introduced the chess pieces to the students one by one. I watched videos about the directions. Coloring pages are made. I told a chess story. I aimed to raise awareness about the game of chess. I didn't practice on a one-to-one chessboard. I set a chess piece each week. In this way, I tried to practice, that is, to teach" ...*(T4).

It is seen that teachers prepare and implement a program for themselves and use course videos in their chess teaching, considering the course contents and practices they have attended before. The answers of the teachers show that they benefit from the types of preschool activities (riddles, nursery rhymes, songs, fairy tales, children's games, drama, painting exercises) in chess teaching. Some also said that they use animations, cartoons, question-answers, showings, and getting done with chess. A teacher said, *"I make use of the chess starter book and plan the education accordingly. In addition, I support the chess education board, explain the lesson, and practice. In addition, I teach chess-related games, nursery rhymes, and puzzle songs" ... (T6).*

### 3.3. Theme 3: Evaluating chess applications

The categories and subcategories for the research questions 4, 7, and 8 for teachers' evaluation of the effectiveness of chess practices in preschool are presented in Table 8.

**Table 8**

*Categories and sub-categories related to teachers' evaluation of the effectiveness of chess practices in their schools and classes*

Category	Subcategory
School practices	Effective
	Not effective
Practices of teachers	Effective
	Not effective
The need for educational support in preschool chess teaching	Support training is needed
	Support no training required

According to Table 8, "School practices" were evaluated in the first category. According to teachers, chess teaching in schools and competitions organized at the provincial level supports children's development of personality, self-confidence, awareness, and attention, enabling them to succeed in problem-solving and strategy development. One of the answers to why teachers find chess activities in schools effective is, *"Yes because chess contributes to children being more patient and calmer because it is a thinking game (T1)." Another teacher said, "Yes, children play chess at an early age, problem-solving, strategy development, logic, etc. in the following years. I think he is more successful in the fields (T2)", while another one said, "Yes, I find it productive because I get enough feedback from children and parents (T9)".*

In the second category, teachers mostly evaluated the method they use in chess teaching as effective but not enough. In this direction, a teacher said, *"I don't think this method is enough for full chess teaching. Because the classroom was too crowded (26) and I didn't have a chance to take care of the children" (T4).* In terms of the physical environment, too, *"It's effective, but I don't think it's enough. It is necessary to have a separate teaching area for chess teaching. It is necessary to direct children who have a willingness and interest in chess to chess (T6)," he said.*

Two teachers who evaluated the chess teaching practice in terms of suitability for the preschool period said, *"I find it sufficient for upper-level children (T9)." "I think it's not enough. The resources for children of that age are very few and not very understandable. It might be more effective if there were different resources just for preschoolers (T12)".* By saying, T12 emphasizes that teaching should be made appropriate for preschool.

Some teachers have said that chess teaching methods are “effective”. Accordingly, T10 said, *“I think that the training given with one-to-one chess pieces is effective. Since what we learn in education appeals to all age groups, we can make very little use of them.”* Then, another one measured his achievements with children: *“I did the practice for 3 years. Their comeback has been effective. In the tournaments organized within the scope of the province, my students received degrees and medals (such as first place, second place)... T11”*. It is seen that teachers evaluate the chess teaching methods they apply according to the children's learning status and tournament success in the chess game.

In the third category, it was evaluated whether teachers need support education for chess teaching in the preschool period. Most teachers have said that they need support education. There are also teachers in this group who say that chess teaching methods are effective. Teacher opinions that support the finding, *“Yes, I need it. Since my education is not preschool, I do not know exactly the needs of children this semester. I'm trying to do something with my research and learning by living for now...T1”*, *“Yes, I hear, I would like to have a gamified resource for preschool chess education...T8”*, *“Yes, I hear it. I would like to take a separate course, a seminar for preschool chess teaching...T10”* he said.

In addition, at least a high school graduate who has obtained a Chess certificate can teach for the desired age group, while he can also open a course with the change in 2022 (Mebduyurular, 2022). The two applications before and after the change in 2022 also allow those who do not have pre-school education to teach their children this semester. This can lead to situations that can negatively affect the development of children. Moreover, it is an important finding of the research that even preschool teachers have difficulty adapting the chess game to their children during this period.

#### **4. Discussion**

The findings of this research show that preschool teachers take an intensive and theoretical course to teach chess, use course slides and TCF resources in teaching chess to children, use types of preschool activities in their practices, and need support training. The results of this research show that teachers continue the course and succeed in the exam to teach chess.

Teachers have mostly obtained chess course documents by attending a course organized by the provincial directorate of national education. Literature shows that the course programs are carried out within the framework of the cooperation protocol signed between the Ministry of National Education and the TCF (Turkish Chess Federation, 2016). Some of the teachers have obtained documents by attending the course organized by the TCF provincial representative office. This finding is similar to the literature in which TCF organizes trainer course programs (Belgeler, 2023). Similarly, Venezuela has trained thousands of teachers to teach thinking skills (Linder, 1990).

The findings of the research show that teachers take the chess course in face-to-face instruction. A teacher has joined the distance education program of a state university. The chess course program has mostly been implemented in two different periods, but the total number of hours is the same. The majority of the teachers were involved in the course program, which is one week and a total of 30 hours, organized by the directorate of national education. The course program of the TCF provincial representative office, which some teachers attend, is two weeks and

30 hours. The research report (Hall & Nash, 2021) states the systematic education of teachers is the criterion of the institutionalization model.

The results show that the teachers received the chess course documents in the period covering the years 2015- 2018. According to Belgeler (2023), these dates are the dates that teachers usually follow the protocol of the TCF and the Ministry of National Education in 2016, which includes chess teaching in kindergartens. The results of this research show that the contents of the chess course program given at the Ministry of National Education (2021) and TCF are similar. These contents are the material of the chess game in general and the introduction of the figures of the game, the characteristics of the figures, the basic rules of the game, and the explanation of the special rules of the game. Literature shows that it coincides with the course-level contents within the scope of the research subject. Supporting the findings, FIDE (2023), research report, national curriculum and basic education material, and development of public education programs are considered institutional model criteria.

The results show that slides with supporting visual elements, videos with chess moves and situations, as well as a chess training board (a square floor with chess squares and a material in which two-dimensional figures are attached to the corresponding squares), were used in two chess course programs. All the teachers said that the course was worked out theoretically and that they did not practice on the chess set consisting of a game board and figures. The literature (Hall & Nash, 2021) reports that if the person providing chess education is a teacher, he may need more training in chess skills.

The research results show that teachers practice before school after completing the course and receiving their certificates for teaching chess. All the teachers said that they were teaching chess. The majority of teachers teach chess in the five-six age group, some at the age of five. Similarly, in the studies of Korobeinikov and Korobeinikova (2019) and Temirovich (2022), according to the coaches, the age of five is the best time to start learning chess. The results of Tamer's (2020) study are also supportive.

The results show that teachers teach the game every week for a different number of days and different durations and intervals. Teachers teach chess between 1-6 hours a week. Most teachers work one day a week, one lesson hour (40 min.), and some of them teach chess for two lesson hours, three days a week. Teachers' practice periods are within the scope of the weekly 6-hour "extracurricular exercise" determined by the Ministry of Education (MEB Özel Öğretim Kurumları Genel Müdürlüğü, 2021). The literature supports this form of application. In the study, Temirovich (2022) suggested that pre-school chess teaching should not exceed 30 minutes and that the child's interest in the game should be focused on in the first year.

The findings show that teachers' chess teaching practices vary between seven weeks and six months. Some of the teachers said that they continued their practices for 12 weeks and some for six months. The studies are carried out on request with the financing of the Ministry of National Education (MEB Özel Öğretim Kurumları Genel Müdürlüğü, 2021). The research finding shows that teachers use the knowledge and resources they have acquired while preparing for the chess teaching program before school. Some of the teachers said that they prepared their applications by using the course slides, and some of them used the chess beginner's book. In addition, most of them

said that they used two/three of the types of preschool activities (riddles, nursery rhymes, songs, fairy tales, children's games, drama, and coloring studies) in content preparation and application. Similarly, in their study (Korobeinikov and Korobeinikova, 2019), they determined that applications, games, and cartoons enable children to behave appropriately.

The results show that all teachers have a chess team in their classrooms. Most teachers said that they use the chess set as a material in their applications, while some said that they use the chess training board\*. In addition, the majority of them said that they did their practice in chess classes at their schools, and some of them taught in their classes. These results show that TCF sends chess materials to kindergartens within the framework of the protocol of chess in kindergarten (Belgeler, 2023). The basic model in chess includes the adequacy of the teaching material .

The findings show that teachers find the chess activities (tournament, competition preparations) performed in their schools enough. The majority of teachers said that they think that chess activities have positive improvements in children's behavior and will have positive effects on children's personality development. In the FIDE – ECU research report (Hall & Nash, 2021), Turkey was included in support of the study findings.

This research shows that teachers transfer the experiences they have gained in teaching chess to children and try to adapt them to the preschool period. The majority of the teachers said that they did not find the application methods in chess teaching enough before school, and some of them said that they did not find them effective enough. The research supporting the findings (Şahin & Yıldırım, 2022) determined that the ME 2019 preschool chess program should be organized and elaborated. In the literature (Hall & Nash, 2021), it is stated that educational chess is very interesting with well-trained teachers, and after joint training, the teacher or school can use chess in any educational field it wants.

The results of this study show that preschool teachers need support training in teaching chess to the 5-6 age group. Apart from two teachers, all the teachers said that they needed gamified resources with a separate course or seminar for preschool within the framework of support education and that they had difficulty adapting the game to preschool because they learned its general rules. Two teachers said that they considered themselves enough, and one teacher said that TCF had used the chess teaching booklet in preschool education. The supporting research report (Hall & Nash, 2021) has determined that pre-chess programs are available for children between the ages of 6 and 8 in Argentina. Dec. In addition, it recommends that countries improve their assessment systems, increase the control of educational chess in public schools, and support school teachers in the pedagogy of chess teaching.

It is seen in the findings of this study that preschool chess activities in Turkey are carried out by the Ministry of National Education and TCF to encourage practices for the chess program in public schools, they create teaching materials and resources and share them on their websites and the Internet and teachers are trained. The chess practices, financing, materials, resources, and education studies of the Ministry of National Education and TCF in schools continue to develop.

## **5. Conclusion**

This research aimed to determine the evaluations of preschool teachers about chess learning methods, course programs, and preschool teaching practices. The findings of this study are in line



with previous literature that to teach chess, teachers need to learn the game of chess at the beginner level and complete the curriculum successfully, that pedagogical knowledge should be enough for its adaptation to preschool and use preschool teaching methods, and that it is difficult and requires preparation.

The conclusions of this study, preschool teachers' chess learning processes, course program content, and teachers' evaluations of the course program, it is important because they reveal the method, material, and content of the program, the implementation of the program, the needs of the teachers, their suggestions and their evaluations of the teaching of chess. It is seen that teachers have difficulties in carrying out chess teaching for educational purposes. It is recommended that they be supported educationally in teaching chess at the pre-school level.

## 6. Recommendations

According to the results of this study, it will be useful to determine the purpose of chess teaching programs for preschool teachers and to organize the content of the program by the preschool period. The fact that teachers learn the game of chess in practice and absorb the basic principles sufficiently will make it easier for them to create program content suitable for the characteristics of the group they will teach.

Teachers' preparation of sample applications suitable for the age group and school level where they will teach chess within the course program will contribute to gaining experience and learning the ways to reach relevant resources. Evaluation studies for teachers teaching chess in preschool will be useful in terms of improving practices.

## Conflict of Interest

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