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Analysis of Teachers' Attitudes to Chess and Intelligence Games According to Some Variables

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Abstract

In recent years, there has been a notable increase in the emphasis placed on teaching chess and other intellectual games to students in schools. It is equally important to consider teachers' attitudes toward these games, as such attitudes may influence their instructional approaches. The aim of this study is to examine teachers' attitudes toward chess and intellectual games in relation to several variables. A relational survey model was employed throughout the research. A total of 245 teachers from various academic disciplines participated in the study. Data were collected using a personal information form, the Intelligence Games Attitude Scale, and the Chess Attitude Scale. The findings indicate that there is no statistically significant difference in attitudes toward chess based on gender. Furthermore, teachers employed in public schools exhibited higher attitude scores than their counterparts in private schools. While no significant differences were identified in attitude scores based on school level or professional experience, a significant difference was observed concerning the level of chess proficiency. It can be proposed that teachers who incorporate intellectual games, particularly chess, will cultivate greater interest and more positive attitudes toward these games among their students.

Keywords: chess, intelligence games, teacher, attitude

Öğretmenlerin Satranç ve Zekâ Oyunları Tutumlarının Bazı Değişkenlere Göre İncelenmesi

Özet

Son yıllarda öğrencilere okullarda satranç ve zeka öğretimi önem kazanmıştır. Öğretmenlerin satranç ve zeka oyunlarına yönelik tutumları da bu tür oyunları öğrencilerine öğretmede önemlidir. Araştırmanın amacı, öğretmenlerin satranç ve zeka oyunlarına yönelik tutumlarını bazı değişkenlere göre incelemektir. Araştırmada ilişkisel tarama modeli kullanılmıştır. Araştırmaya farklı branşlardan 245 öğretmen katılmıştır. Veriler kişisel bilgi formu, Zeka Oyunları Tutum Ölçeği ve Satranç Tutum Ölçeği ile toplanmıştır. Araştırma sonuçlarına göre öğretmenlerin satranca yönelik tutum puanlarının cinsiyete göre anlamlı bir farklılık göstermediği, devlet okullarında görev yapan öğretmenlerin tutum puanlarının özel okullarda görev yapan öğretmenlere göre daha yüksek olduğu tespit edilmiştir. Okul düzeyi ve mesleki deneyime göre tutum puanlarında anlamlı bir fark bulunmazken, satranç oynamayı bilme düzeyine göre anlamlı bir fark bulunmuştur. Öğretmenlerin başta satranç olmak üzere zeka oyunlarını aktif kullanmalarının, öğrencilerinin bu tür oyunlara olan ilgi ve tutumlarını artıracağı söylenebilir.

Anahtar Kelimeler: satranç, zekâ oyunları, öğretmen, tutum

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Introduction

Various methods and techniques are used to provide students with many skills, which are also considered 21st century skills. These are problem solving, critical thinking, creative thinking and innovation application skills, communication and collaboration skills, information and media literacy, entrepreneurship, leadership, and responsibility. One of these methods is games, especially chess (Ulus, 2022). In literature, game genres are grouped under various titles, but they are commonly classified into five types. These are physical games, object games, dramatic games, language games and games with rules (Aksoy & Çiftçi, 2019; Aral & Durualp, 2014).

Intelligence games are included in the rule game group among these game types. Intelligence games are divided into various subgroups in the MEB intelligence games curriculum and in the resources related to the program (MEB, 2013; 2019). According to literature review, memory games, strategy games, verbal games, reasoning and processing games and geometric mechanical games, and intelligence questions are types of intelligence games. In reasoning and operation games the players reach conclusions with logical inferences by making use of clues. The necessary information to solve the problem is provided to the players at the beginning of the game. In verbal games children get use of vocabulary or general culture together with logical inferences. In geometric-mechanical games players need visual perception skills. In memory games players need short term and long-term memory skills, and they can also play the games using their visual and verbal skills. In strategy games players can either win or lose; and one player decides on his move looking at the other player's move. For intelligence questions, on the other hand, players need to have a different reasoning skill, they need to reach the conclusion by evaluating the clues provided to solve a problem (MEB, 2013; 2019). There are three levels of difficulty in these games: beginner, intermediate and advanced; different games need different numbers of players (MEB, 2013) and most of these games can also be played on digital platforms. With these rich genres and contents, intelligence games have very important gains in terms of education and development of children. Children learning, liking and playing these types of games at school is directly related to teachers' attitudes towards these games. In order for teachers to play these games as part of the lesson in the classroom, they must first believe in the benefits of these games. It is important to determine teachers' attitudes towards intelligence games because these attitudes have the power to actively shape and influence teachers' current behaviors towards an event, object, or situation as a reflection of their past life and experiences, and show their cognitive and emotional tendencies (Allport, 1935; Kağıtçıbaşı, 1999; Taylor et al., 2015). These attitudes, which include the behaviors, thoughts, and feelings of teachers towards intelligence games, are also one of the most important psychological characteristics as an individual (Karasar, 2009). In this respect, it is important for teachers to like and care about intelligence games, buy them, have fun while dealing with them, and follow competitions about intelligence games. Therefore, teachers' positive attitudes towards intelligence games will contribute to the development of children's physical, cognitive, social, and emotional aspects, such as problem solving, attention, working memory, and school success. These attitudes of teachers can also be an indicator of the frequency of including mind games in the education curriculum, which is beneficial for children and provides them with a rich educational environment.

Determining these attitudes of teachers can also contribute to the further development of intelligence games education programs and to eliminate their deficiencies by revealing the adoption of mind games by teachers. The World Chess Federation (FIDE) determined chess as "a game played between two opponents who move their pieces alternately on a square board called a 'chessboard". The aim of both sides is to checkmate the opponent's king and win the game (International Chess Federation [FIDE], 2022). Scientific studies reveal the positive aspects of chess. According to Frank (1974), chess causes the grasping speed to increase greatly. It can be said that chess is useful in establishing a cause-effect relationship between

events. Chess develops creative thinking in individuals thanks to the different and effective problems it produces in the game. Chess is not only seen as a sport but also as a tool that contributes to the education of students because chess, as a strategy game, has multifaceted academic effects such as problem solving, analytical thinking and applying mathematical concepts (Aydın, 2015).

It is widely accepted that the game of chess, which is contemplated as a projection and a simulation of life, has positive and lasting effects on education. It can be said that it raises individuals with strong concentration and careful attention. Playing chess requires many skills because in-depth analysis of the emerging positions in the game of chess is required (Pritchard, 1998; Sadık et al., 2018). As a result of the static and dynamic evaluation of various situational elements, the most appropriate move emerges (Suetin, 1994). Chess training can be used as a tool to teach children to focus on what really matters in each situation. Chess is an activity-based game that encourages critical thinking and involves self-learning within itself (Barrett & Fish, 2011).

In today's world, where the importance of using time and space is increasing, one of the concepts that children should learn is time management. While technology and pace of life are increasing rapidly, time management cannot be considered separately (Sadık, 2006). Although chess is not a speed game played against time, it is a thoughtful sport that must be played within a certain time frame. The aim is to be able to play fast and make the right decision at the same time. With this aspect, chess is among the games that best emphasize the importance of time and increase the skill of using time. It is known that children learning chess play very quickly under time pressure and can make the right decisions.

Chess also teaches that a plan should be made by using the available possibilities in the most rational and economical way to reach the goal (Kulaç, 2005). Undoubtedly, it is of great importance that the game, which contains such benefits, is loved by students, and ensured that they play it. Studies on chess found that students who received it in early childhood were more accomplished in math and cognitive skills than those who did not obtain this education (Sağlam Tekneci, 2009). Sadık (2006) terminated that children who can play chess have better problem-solving skills than those who do not. In another study, Büyükaşık (2017) found that secondary school students exhibited positive attitudes towards problem solving as their chess knowledge level increased.

Some games that do not contain educational elements offered by technological devices to children make individuals socially distant and addicted. For this reason, it is important for the individual to turn to games that will enable him to learn, socialize and have fun to lead a quality life, and develop the necessary skills and abilities (Çağır & Oruç, 2020). In this context, teachers have a great responsibility in making students love games such as chess and enabling them to play. Undoubtedly, the lessons students take during their education significantly affect the behaviors and achievements they will form in their future education and professional life. It is thought that it is more important to decide the tendency of teachers towards a game with such a significant impact. Teachers have an important place in transferring knowledge, the cultural values, and skills of society to the younger generations (Hosgörur, Kılıç & Dündar, 2002). Professional qualifications of the teacher; general culture, also subject area knowledge, and teaching profession knowledge and skills constitute, while personal qualities include a person's propensity for the profession, being an example and a model required by teaching (Çınar, 2008). Attitude is a mental, emotional, and behavioral reaction predisposition that an individual organizes based on his experience, motivation and knowledge against any object, social issue or event around him (İnceoğlu, 2004). Attitude is a tendency attributed to an individual that regularly forms her feelings, thoughts, and behaviors about a psychological object. (Smith 1968; Kağıtçıbaşı, 2005). Attitudes are divided into three as mental, emotional, and behavioral. It is thought that there is mostly organization and therefore internal consistency among these

elements. According to this assumption, the person's knowledge about a subject (cognitive element) determines how he should approach it (emotional) and how he will behave towards it (behavioral element). The mental, emotional, and behavioral stance of the person about an object, situation or person reflects his or her attitude (Göksel et al. 2017). Therefore, for the attitude to emerge, there must be an organizational and harmonious relationship and coordination between the three elements in question. Unless there is an internal harmony and organization, that is, coordination between mental, emotional, and behavioral elements, it is not possible to form an attitude (İnceoğlu, 2004). The role model status of my teachers is undoubtedly directly related to their attitudes.

There are many studies with Students (Aciego, Garcia, & Betancourt , 2012; Barrett & Fish, 2011; Çağır & Oruç, 2020; Gökkaya, 2022; Hong & Bart, 2007; Joseph, Veena Easvaradoss, & Solomon, 2016; Kazemi, Yektayar, & Abad, 2012; Sağlam Tekneci, 2009; Sertel, 2017; Scholz et al., 2008; Trinchero, 2013; Wu, 2022) and teacher candidates (Sadık & Tezcan Kardaş, 2018) investigating their contributions to cognitive and affective characteristics, especially academic achievement. For example, Aciego, Garcia, and Betancourt (2012) investigated the benefits of playing chess on the intellectual and social-emotional development of school children. Barrett and Fish (2011) examined the effectiveness of chess training on mathematics achievement for students receiving special education services. Çağrı and Oruç (2020) examined the effects of using intelligence and intelligence games in Social Studies class on academic success and students' attitudes towards Social Studies class. However, studies with teachers who will teach these games to students are few (Şahin and Yıldırım, 2022). In this context, it will be important to know the level of teachers' attitudes towards intelligence games and chess.

Moving from these contexts, the aim of this study is to analyze how teachers' attitudes towards chess and intelligence games change according to some variables (gender, school level, branch, etc.). For this purpose, sub-problems.

1. Is there a significant relationship between teachers' attitude scores towards chess and intelligence games? (Do teachers' attitudes towards chess significantly predict their attitudes towards mind games?)
2. Do teachers' attitude scores towards the game of chess change according to gender, school level, official or private institution, teaching experience and level of chess knowledge?

Method

Correlational survey model was used in the research. The correlational survey model aims to determine the presence or degree of co-variance between two or more variables. In the correlational survey model, it is tried to find out whether the variables change together and if there is a change, how this happens (Büyüköztürk, 2016; Karasar, 2005). The correlational research process consists of identifying the problem, selecting a sample, collecting data, and interpreting the results. As a problem in the research, the relationship between teachers' chess and intelligence games attitudes and the change of attitudes according to some variables were discussed.

Participants

The study group consists of 229 teachers working in the Mediterranean region. The teachers who voluntarily participated in the study were reached online. For the homogeneity of the groups, the normality of the data (kurtosis skewness coefficients) and the homogeneity of the variances (Levene test) were tested in the groups. After it was seen that the conditions were

met, the data were analyzed. The teachers who participated in the study demographic information is shown in Table 1.

Table 1. Demographic information of study group

	Group	**N**	**%**
Gender	Male	145	63.3
	Female	84	36.7
School level	Primary school	45	19.7
	Middle school	100	43.7
	High school	84	36.7
Employed institution	Private	60	26.2
	Public	169	73.8
Professional Experience	1-5 years	61	26.6
	6-10 years	42	18.3
	11-15 years	38	16.6
	16-20 years	48	21.0
	24-25 years	26	11.4
	26 years and above	14	6.1
The state of knowing how to play chess	None	33	14.4
	Little	69	30.1
	Intermediate	98	42.8
	Well	29	42.8

Data Collection

Personal Information Form as a data collection tool, the Scale for Attitude towards Chess (SAC) and the Scale for Attitude towards Intelligence Games (SAIG) were used.

Ethics Committee Permission

This study was carried out with the decision of Akdeniz University Social Sciences and Humanities Research and Publication Ethics Board dated 10.06.2022 and numbered 10/211.

Personal Information Form

The form, which was prepared by the researchers and received expert opinions from 3 faculty members and 2 teachers from the faculty of education who are experts in their fields, consists of questions including teachers' gender, school level, branch, official or private institution, graduated faculty, teaching experience and level of chess knowledge.

Scale for Attitude towards Chess (SAC)

Factor loads of the one-dimensional and 16-item Likert-type scale developed by Sadık, Öntürk and Dinç (2018) vary between .76 and .94, the total explained variance of the scale was calculated as 86%, the Cronbach's Alpha reliability coefficient was calculated as .98, and the Cronbach α internal consistency was calculated by the researchers. Reliability coefficient was calculated as 0.939. It was decided that the scale is an appropriate, valid, reliable, and useful scale.

Scale for Attitude towards Intelligence Games (SAIG)

Kurupınar and Aydoğan (2020), the first sub-factor with 11 items accounted for 31.98% of the total variance, while the second sub-factor comprised 31.98% of the total variance with 6 items

and 13.41%, in a 22-item scale designed in a five-point Likert type, including positive attitude, negative attitude and behavioral component. and the third sub-factor explained 7.96% with 5 items. The three-factor structure explains 53.35% of the total variance. The validity of the structure reached by EFA was confirmed by CFA and the Cronbach Alpha reliability coefficient of the whole scale was found to be .89. It was observed that the Cronbach Alpha reliability coefficients of the sub-factors ranged from .81 to .89 by the researchers. The Cronbach α internal consistency reliability coefficients of this scale were found to be 0.807 for the attitude towards intelligence games, 0.658 for the positive attitude, 0.770 for the negative attitude, and 0.801 for the behavioral item. As a result of the findings, it was decided that the scale is valid and reliable in measuring attitudes towards intelligence games.

Data Analysis

One-way outlier scanning was performed on the data, the cut-off point was determined as ±3 (Raykov & Marcoulides, 2008), and the 16 values outside this cut-off point were excluded from the analysis. The normality of the data was checked with the skewness-kurtosis coefficients. The interval of ∓ 1 was accepted as the cut -off point for the skewness coefficients. The equality of variances between the groups was tested with the Levene test, which showed that the assumption of equal variance was met. When the kurtosis-skewness coefficients of the variables for the regression analysis were examined, it was accepted that the data did not deviate much from normality and showed a distribution close to normal, since the values obtained were close to the ±1 range. Multicollinearity was checked with VIF values, and it was determined that all these values were below 10. Durbin Watson values were examined for autocorrelation, and it was determined that all values were between 1 and 3. Analyses were performed after determining that all assumptions were met.

Findings

The relationship between attitude towards chess and attitude towards mind games

Multiple regression analysis was applied to determine whether teachers' attitudes towards chess significantly predicted their attitudes towards mind games. The findings obtained as a result of the analysis are given in Table 2.

Table 2. Regression Results Regarding the Prediction of Teachers' Attitudes Towards Chess

Variable	B	Std. Error$_t$	β	T	P*	Double r	Partial R
Constant	6.093	15.344	-	0.397	0.692	-	-
Negative Attitude	-0.515	0.207	-0.173	-2.491	0.013	-0.418	-0.164
Positive Attitude	2.059	0.453	0.303	4.548	0.000	0.465	0.290
Behavioral Element	0.579	0.188	0.197	3.089	0.002	0.386	0.202
R=0.538	R^2=0.290						
$F_{(3.225)}$=30.561	p=0.000						

*p<0.05

The bilateral and partial correlations between the predictor variables and the predicted variable were examined, it was seen that there was a negative moderate relationship between teachers' attitudes towards chess and negative attitudes (r=-0.418), and when other variables were controlled, the correlation was -0.164. A positive moderate correlation was found between

teachers' positive attitudes and their attitudes towards chess (r=0.465). When other variables were controlled, the correlation value was found to be 0.290. A positive moderate correlation was determined between the participants' attitudes towards chess and their behavioral component scores (r=0.386). When positive and negative attitude variables were controlled, the relationship was found to be 0.202.

Positive attitude, negative attitude and behavioral component variables and attitude towards chess variable show a moderately significant relationship (R=0.538, R^2=0.290, p=0.000); positive attitude, negative attitude and behavioral component explain approximately 29% of the total variance in teachers' attitudes towards chess. According to the standardized regression coefficients (β), the order of importance of the predictor variables on teachers' attitudes towards chess is positive attitude behavioral component and negative attitude. The significant levels of the regression coefficients were examined according to the t-test results, and it was seen that positive attitude, negative attitude, and behavioral element were significant predictors of teachers' attitudes towards chess. According to the multiple regression analysis, the regression equation for the prediction of performance is given below.

Attitude towards chess = 6.093-0.515* (Negative attitude) + 2.059* (Positive attitude) + 0.579* (Behavioral element)

Findings on the Relationship between Teachers' Attitude Scores Towards Chess Game and Gender

Whether the teachers' attitudes towards chess differed significantly according to their gender was checked with the t-test for independent groups, and the results obtained from the analysis are shown in Table 3.

Table 3. T-Test Results of Teachers' Attitudes Towards Chess by Gender

	Grup	**N**	**$\overline{X}$**	**S**	**sd**	**t**	**p***
Attitude towards chess	Female	145	63.22	12.91	227	-1.349	0.179
	Male	84	65.55	12.06			

**p<0.05*

According to the results obtained, it was determined that the scores of the teachers included in the study towards chess did not show a significant difference according to gender ($t_{(227)}$=-1.349, p= 0.179).

Findings on the Relationship of Teachers' Attitude Scores Towards the Chess Game with the Public or Private Institution

Whether the teachers' attitudes towards chess differed significantly according to the institutions they work at was checked with the t-test for independent groups, and the results obtained from the analysis are shown in Table 4.

Table 4. T-Test Results of Teachers' Attitudes Towards Chess According to the Institutions They Work

	Group	**N**	**$\overline{X}$**	**S**	**sd**	**t**	**p***
Attitude towards chess	Private	60	60.27	13.34	227	-2.764	0.006
	Public	169	65.44	12.11			

**p<0.05*

According to the results obtained, it was determined that the attitude scores of the teachers included in the study showed a significant difference according to the institution they worked in ($t_{(227)}$=-2.764, p=0.006). It was observed that the $\bar{X}$ attitude scores of teachers working in public schools ($\bar{X}$= 64.44) were higher than those of teachers working in private institutions ($\bar{X}$ = 60.27).

Findings on the relationship between teachers' attitude scores towards the game of chess and the school level where they work.

Whether the teachers' attitude scores towards chess show a significant difference according to the school level they work in was analyzed with a single factor ANOVA, and the results of the analysis are shown in Table 5.

Table 5. One-Factor ANOVA Results of Teachers' Attitude Scores Towards Chess by School Level

	Source of Variance	Sum of Squares	sd	Mean Squares	F	p*
Attitude towards chess	Between groups	395.227	2	197.613	1.242	0.291
	Within groups	35964.197	226	159.134		
	Total	36359.424	228			

**p<0.05*

According to the results of one-factor ANOVA, it was determined that the attitudes of the individuals included in the study towards chess did not differ significantly according to the school level they worked at ($F_{(2,226)}$=1.242, p=0.291).

Findings on the Relationship between Teachers' Attitude Scores Towards Chess and Their Professional Experience

Whether the teachers' attitude scores towards chess show a significant difference according to their professional experience was analyzed with a single-factor ANOVA, and the results of the analysis are shown in Table 6.

Table 6. One-Factor ANOVA Results of Teachers' Attitude Scores Towards Chess According to Professional Experience

	Source of Variance	Sum of Squares	sd	Mean Squares	F	p*
Attitude towards chess	between groups	1525.347	5	305.069	1.953	0.087
	within groups	34834.077	223	156.207		
	Total	36359.424	228			

** p<0.05*

According to the results of one-factor ANOVA, it was determined that the attitudes of the teachers included in the study did not show a significant difference according to their professional experience ($F_{(5,223)}$=1.953, p=0.087).

Findings on the Relationship between Teachers' Attitude Scores Towards Chess and Chess Playing Knowledge Levels

Whether the teachers' attitude scores towards chess show a significant difference according to their level of knowing how to play chess was analyzed with a single-factor ANOVA, and the analysis results are shown in Table 7.

Table 7
One-Factor ANOVA Results of Teachers' Attitude Scores Towards Chess According to Their Level of Knowing How to Play Chess

	Source of Variance	Sum of Squares	sd	Mean Squares	F	p*
Attitude towards chess	between groups	4612.443	3	1537.481	10.897	0.000
	within groups	31746.981	225	141.098		
	Total	36359.424	228			

**p<0.05*

According to the results of one-factor ANOVA, it was determined that the attitudes of the individuals included in the study showed a significant difference according to their level of knowing how to play chess ($F_{(3,225)}$=10.897, p=0.000). Tukey test, one of the post-hoc tests, was used to determine the source of the difference, and according to the test results, those who said, "I don't know" ($\bar{X}$=54.45) "I know little" ($\bar{X}$=63.94), "I know moderately" ($\bar{X}$=65.37) and "I know well" ($\bar{X}$=71.00). It was determined that there was a difference between those who said. When the averages were examined, it was determined that the scores of the teachers in the "I don't know" category were lower than the scores of the teachers in all other groups. In addition, it was determined that the scores of the teachers who answered, "I know little" and those who answered "I know well" differed significantly. It has been determined that the scores of those who say, "I know little" are lower than those who say, "I know well".

Conclusion and Discussion

This study, which examines whether the attitude scores of teachers towards chess games change according to gender, school level, public or private institution, teaching experience and level of chess knowledge, and whether it predicts their attitude scores towards intelligence games, was conducted online with 245 teachers working at different levels. Teachers' attitudes towards chess were determined using a 16-item Likert-type scale, and their attitudes towards intelligence games were determined using a 22-item Likert-type scale with three factors (positive attitude, negative attitude, and behavioral element). As a result of the analyzes made, with the attitudes of teachers towards chess; it was determined that there was a negative moderate relationship between negative attitudes, a positive moderate relationship between positive attitudes, and a moderate positive relationship between behavioral item scores. In addition, it was determined that positive attitude, negative attitude, and behavioral component explained approximately 29% of the total variance in teachers' attitudes towards chess, and it was found that the order of importance of the predictive variables on teachers' attitudes towards chess was positive attitude, behavioral component, and negative attitude. When the significance levels of the regression coefficients were examined, it was seen that positive attitude, negative attitude, and behavioral element were significant predictors of teachers' attitudes towards chess. Whether the teachers' attitude scores towards chess differed significantly according to their genders, it was checked with the t-test for independent groups and it was determined that the attitude scores towards chess did not show a significant difference according to gender. This situation coincides with the results of Sadık and Tezcan Kardaş (2018), who found that attitudes towards chess do not differ according to gender, and Altun and Görmez (2021), who found that teachers' attitudes towards digital games do not differ according to gender. From these results, it can be said that both male and female teachers show a similar interest or lack of interest in chess and digital games.

It was checked with t-test for independent groups whether the teachers' attitude scores towards chess differed significantly according to the institutions they work in, and it was seen that the attitude scores of teachers working in public schools were higher than those of teachers working in private institutions. Although there is no study on this subject in the literature, one of the factors may be that private school teachers have limited time devoted to chess due to working full time. This situation can be interpreted as teachers working in public schools are more interested in chess and spend more time on chess.

It was analyzed with a single factor ANOVA whether the teachers' attitude scores towards chess showed a significant difference according to the school level they studied, and it was determined that the attitudes towards chess did not show a significant difference according to the school level they studied. This situation can be interpreted as chess appealing to all ages.

Whether the teachers' attitude scores towards chess show a significant difference according to their professional experience was analyzed with a single-factor ANOVA and it was determined that teachers' attitudes towards chess did not show a significant difference according to their professional experience. In the study of Şen and Sarıkaya (2015), it was observed that as the professional seniority of the teachers increased, the use of drama, theater and art activities decreased, and the efforts to complete the missing achievements in chess increased.

Whether the teachers' attitude scores towards chess show a significant difference according to their level of knowing how to play chess was analyzed with a single-factor ANOVA and it was determined that their attitudes towards chess showed a significant difference according to their level of knowing how to play chess. It was determined that the scores of the teachers in the "I don't know" category were lower than the scores of the teachers in all other groups. In addition, it was determined that the scores of the teachers who answered, "I know little" and those who answered "I know well" differed significantly. It has been determined that the scores of those who say, "I know little" are lower than those who say, "I know well". It is possible to expect a direct relationship between teachers' chess playing levels and their attitudes towards chess. However, the direction and strength of this relationship may vary depending on many variables. In general, teachers who play chess more often and better are expected to have more positive attitudes towards chess. Because a game played regularly can provide many benefits such as giving pleasure to the person and developing problem-solving skills, thus causing them to have more positive feelings towards the game. In some cases, it is also possible to think that teachers who are not very successful at chess may develop negative attitudes towards the game. Constant losing or having difficulty with the complexity of the game can lead to a negative perception of the game. The reasons for this situation include childhood experiences, social environment, education process, and school environment. This situation coincides with the findings of Devecioğlu and Karadağ (2014), who stated that situations such as teacher incompetence and teacher indifference cause disruptions in the teaching of chess and intelligence games.

There are many studies showing the positive contribution of chess and intelligence games to both affective and cognitive development of the person (Aciego, Garcia, & Betancort, 2012; Büyükaşık, 2017; Eldaou, & El- Shamieh, 2015; Gliga & Flesner, 2014; Sala & Gobet, 2016; Tamer, 2020; Tekneci, 2009). On the other hand, there is a limited number of studies on the attitudes of teachers who will teach chess in schools towards chess and intelligence games. Therefore, it is important to determine the affective characteristics of both teachers and prospective teachers such as attitudes towards chess and intelligence games, and self-efficacy. In this sense, it is important to inform teachers in all branches about the benefits of mind games and chess. Courses can be opened for teachers who do not know chess. Chess teaching and

refereeing courses can be expanded among teachers. Chess tournaments can be organized within schools. In this study, data were collected from 245 teachers who teach in different branches and levels. After excluding 16 with missing information, the study was conducted with data from 229 teachers. More detailed findings can be obtained with studies conducted with a larger number of teachers.

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