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International Journal of Curriculum and Instruction 13(3) (2021) 3165–3196

IJCI
International Journal of Curriculum and Instruction

Teacher candidates' perception according to mediation effect of play perception and play and physical activities lesson

Sümeyra Akkaya [a] *

[a] *Inonu University, Faculty of Education, Malatya, 44280, Turkey*

Abstract

The aim of this research is to determine the effect of play perception on play and physical activities lessons on sensory and behavioral attitudes in the context of the mediating effect of cognitive attitude. In this regard, a hypothetical model was proposed by examining the relationships between the relevant sub-dimensions in line with the literature review. A total of 310 teacher candidates studying in the classroom school teaching department in the 2020-2021 academic year participated in the research. The study group was chosen randomly based on the voluntariness of the participants. In order to collect the relevant data in the research, two measurement tools were used in the data collection process; Play Perception Scale developed by Güneş et al. (2020) and Attitude Scale towards Play and Physical Activities Lesson" developed by Hazar and Tekkurşun Demir (2017) were applied. As a result of this study there is a significant and positive direct relationship between interest in the play and behavioral towards the lesson. Likewise, there is a linear relationship between the nature of the play and the affective attitude towards the lesson, and this relationship is negative. Looking at the mediation test results; The cognitive attitude towards the lesson, whose mediation is tested in the theoretical model, acts as a meaningful mediator between the function of the play and the behavioral attitude. When the mediating effect of the cognitive attitude between the authenticity of the play and the behavioral and sensory attitudes is examined, it is observed that it is significant. As the specificity of the play increases, the cognitive attitude decreases. It can be recommended to increase the course hours especially in the primary school level, where the developmental level of children is at the highest level, by adding practice hours to the curriculum for these lessons.

Keywords: Teacher candidates; play perception; play and physical activities lesson; mediation effect

* Corresponding author name. Sümeyra AKKAYA Phone: +904223773000
E-mail address: sumeyra.akkaya@inonu.edu.tr

1. Introduction

1.1. Introduce the problem

Play is an important and unforgettable foundation for childhood. Theorists and researchers have provided a large amount of evidence that proves the value of games for brain development, physical development, literacy, and social and emotional development. Specifically, play is a natural environment and activity in which children can improve gross and fine motor skills, develop language and reading and writing skills, improve planning and creativity, expand social skills, and learn self-control and emotions management. Although play is a powerful and natural behavior that encourages children to learn and develop, the activities and experiences of play in kindergartens and five-year-olds are disappearing. Organized activities, such as sports, computers and video games, especially scientific attention due to lack of understanding of residual risks, are the reasons for the significant decline in structured and free games. In order to prepare children for the global market and competition, many school curricula focus on structured courses in reading and mathematics, usually including high school content and standardized tests (Szilagyi et al., 2015).

Our rapid adaptation to living conditions, which are getting easier and easier, also causes a sedentary life. Inactivity brings with it many diseases. These diseases not only affect our daily lives but also have fatal risks(Elmas et al., 2021). Although children and adolescents are the most active groups in today's developed society, the sedentary lifestyle of school-age children has a significant increase (Trudeau & Shephard, 2005). Researchers have used various descriptive methods to show that the physical activities of children in community projects are usually characterized by a sedentary lifestyle (W. H. Brown et al., 2009). One of the most important ways to save children from sedentary life is games that include physical activity. However, not every physical activity can be considered as a game.

The following characteristics distinguish game and non-game behavior: (1) intrinsic motivation and self-initialization, (2) process orientation, (3) nonverbal and enjoyable, (4) exploration and initiative, and (5) control. Games are activities that young children naturally participate in, regardless of their origin(Szilagyi et al., 2015).

The World Health Organization (WHO) stated that inactivity in physical activity causes 600 000 deaths per year in the European continent. In order to prevent this situation, it is recommended to include an average of 150 minutes of moderate-intensity physical activities per week in our lives (Kalkavan, 2016).

Physical inactivity is considered to be the fourth leading cause of death in the world, and the international problem of children's physical activity is worrying. For children, the benefits of physical activity are well known. However, in England, only 21% of boys and

16% of girls are engaged with physical activity. Between 5 and 15 years old, it is recommended to do 60 minutes of moderate to vigorous physical exercise every day. Public health measures in schools are important because large numbers of children can be reached, and elementary schools have an important opportunity to increase the number of middle-developing children. During high-intensity physical activities, such as breaks, and physical education classes. In particular, physical education is the only curriculum required to ensure that all children engage in moderate to vigorous physical activities, and is regarded as one of the primary tasks of public health; therefore, extending the time of active physical education has far-reaching significance (Powell et al., 2016).

Around the world, various public health organizations have issued strict guidelines to promote physical exercise to decrease serious health problems. The choice of sports to promote lifelong physical activity is based on two assumptions. All children in most developed countries receive some form of primary and secondary education, which means that most children can get it through the education system. Second, throughout the process, positive and negative behaviors are likely to persist. Life expectancy assessed at a young age found that low to moderate physical activity was recorded in a short period of time; however, it is more difficult to track physical activity from elementary school to adulthood. Except for an observational study, most of the existing child-to-adult follow-up studies are based on adults' memory of children's physical activities (Trudeau et al., 1999).

One of the biggest reasons for the increase in obesity, which reduces the quality of life and negatively affects the flow of daily life and health status, is the decrease in physical activity status as well as the disorders in eating habits (Tunay, 2008). The relationship that occurs as a result of our body's energy intake and consumption is positive and negative. Obesity occurs when the energy taken by the body is more than the energy consumed. While thousands of unhealthy and energetic foods that we can easily reach in our current life cause high energy intake, energy consumption is reduced to a minimum due to the lack of physical activity. This brings along obesity (Gedik, 2003).

The effect of physical activity on daily life and health is a fact that needs to be proven. In order to increase our quality of life and to be healthy individuals, we need to lead an active life (Savcı et al., 2006). Physical activity should be active in order for individuals to age in a healthy way and to minimize the discomforts that are likely to occur as age progresses (Elmas et al., 2021).

Regular physical education has many benefits to the physical, mental, and social health of young people. It is important to encourage the young population to achieve 60 minutes or more of moderate to vigorous physical activity every day, but 80% of young people do not success. Physical activity decreases with age, especially during adolescence (Lander et al., 2017).

Physical activity is delineated as any force exerted by skeletal muscles that cause energy expenditure to exceed resting levels. The health advantages of physical activity for kids are relating to traditional growth and development, maintaining energy balance, reducing upset risk factors, and mental health (Mersh & Fairclough, 2010). The health benefits of regular exercise for adults cannot be deniable. Regular physical exercise has been shown to have a positive effect on many chronic diseases of adults, including coronary artery disease, obesity, diabetes, high blood pressure and depression. They originated in childhood, and the exercise habits developed in childhood can also be fixed in adulthood. Therefore, the measurement of young people's physical activity has become a key element in understanding disease prevention, and children's physical activity needs to be monitored for public health purposes (Duncan et al., 2007).

One hour of moderate to vigorous physical activity per day is very important to prevent non-communicable diseases, increasing strength and endurance, and developing self-esteem. However, in 105 countries only 20% of young people adhere to recommended periods of moderate to vigorous physical activity. Studies have shown that disadvantaged adolescents are less likely to meet physical activity guidelines compared to adolescents with higher socio-economic status. The university identified the key scenarios in the development of physical activity among adolescents as a necessary prerequisite for developing an exercise plan and is also the key to the success of the school's exercise plan (Sutherland et al., 2016).

In the past two decades, many intervention studies have been conducted in schools to promote physical activity and a healthy lifestyle; however, only about studies have reported increased physical activity during school hours (Zahner et al., 2006). Due to the restricted physical and psychological feature skills of the child, the father, particularly the mother, has taken responsibility for the child's healthy behavior within the past. There is also evidence that schools may hold children responsible for their physical behavior. In the school environment, responsibility can be assumed in a variety of ways (e.g. use of equipment / facilities, exercise time, time outdoors, training / supervisor). And these methods are also related to improving the physical characteristics of children's positive behavior (Cox et al., 2010). In addition, the importance of social and parental support in promoting sporting activities for young people is evident. Efforts to involve parents and the community can include sports nights, active open days, sports calendars, and athletic school carnivals. This includes school buses, running school weeks, classes, and strength training clubs at high schools (Beighle et al., 2013).

In childhood, physical exercise can prevent disease and improve health, so people of all ages should increase physical exercise. National and international health authorities advise that all children and adolescents do at least 60 minutes of moderate to vigorous exercise daily (Ünlü & Erbaş, 2019). Early years education can be an intelligent environment for children in educational institutions to be very active on the accuracy of

the analysis and the problems of implementation. Loyalty refers to the flexibility and persistence of the staff responsible for implementing the intervention program in order to implement the intervention program. This is an essential aspect to understand the feasibility, acceptability, and research results of the intervention. Turnover rate, intervention buying, and preschool characteristics all affect the performance of exercise interventions. However, at the educational institution level, there is little or no analysis of the accuracy and performance of research (Alhassan & Whitt-Glover, 2014).

Through high-quality education programs, schools can ensure that young people have sufficient physical education and maintain their body shape. School sports activities are an important part of daily sports activities. Moderate to vigorous physical activity in a high school day is associated with moderate to higher total daily physical activity, and it has a significant beneficial effect on children's mental health. Children who are more physically active during school are also more active during class and lunch breaks (Frömel et al., 2016).

School sports could be a forum where the students learn effective motor skills, psychological changes and general health awareness. In addition, varied organizations suggest that education ought to play a central role in increasing physical activity. This role is vital as a result of several young people fail to achieve the counseled level of physical activity (Lonsdale et al., 2009). Outdoor time is a constant indicator of children's physical activity, and the level of physical activity outside school is higher than during school. Free time is available on weekdays, afternoons and weekends. Compared with structured time, young people have more freedom to choose sports activities in their free time. A school day is easier to encourage organized sports activities. Children's unstructured physical activities ("active games") outdoors in their free time can significantly affect the overall level of physical activity (Brockman et al., 2010).

Developing methods to extend children's physical activity has become a worldwide public health priority, the school is delineated as a perfect place for sports activities, as a result of the activities target cluster will be simply reached each day. In addition, a replacement field of analysis is emerging. WHO confirmed the correlation between physical activity and college performance (K. M. Brown & Elliott, 2015).

The US Department of Health recommends that young people do 60 minutes of moderate to vigorous exercise every day. Unfortunately, the Youth Risky Behavior Observatory showed that only 28.7% of students followed this recommendation. In order to help young people stick to the recommended physical activities, the time for rest and physical education classes is shortened and transferred to the curriculum. In fact, given increasing evidence that there is a positive correlation between student participation in physical activity, general health, and school performance, reducing structural physical

activity during school may actually be counterproductive to the school's mission. The education system aims to improve the academic success rate. Although most of the studies so far have been cross-sectional, a recent review of 25 experimental studies in schools found that physical activity positively impacts young people's academic performance and/or classroom behavior (Delk et al., 2014).

Recognizing its importance to general education, physical education has become a compulsory course for almost all levels of courses in industrialized countries. In modern educational concepts, physical education is regarded as an integral part of the school curriculum. Sports activities are essential to the growth and development of any student (Öncü, 2013). About 250 years ago, Thomas Jefferson wrote many suggestions for life in a letter to his nephew, focusing on education and exercise. "In order to assure a certain progress in this reading, consider what hours you have free from the school and the exercises of the school. Give about two of them, every day, to exercise; for health must not be sacrificed to learning. A strong body makes the mind strong" (Jefferson, 1785, cited in Mullins et al., 2019).

However, many obstacles hinder physical education. These obstacles are divided into two categories: institutional factors (such as professional development, class time, opportunities, financial and human resources, class size, space and equipment) and teacher-related factors (Ünlü & Erbaş, 2019).

The classroom teacher may know some students who find it difficult to stay focused for long periods of time. It is common for the students to take part in courses, discussions, and various learning activities at the beginning of the academic year. The student goes from sitting upright and looking down to lowering his head and placing it on the table. It is often seen that the participation decreases from the beginning to the end of the day (Camahalan & Ipock, 2015). With increasing attention to high school students' physical activities, behavior-related factors regarding lecturers' physical activities became more and more important. In elementary schools (grades 1-4), education categories are instructed by classroom teachers to children aged 7-11 (Ünlü & Erbaş, 2019).

Effective and productive classroom learning is partly driven by teachers' beliefs and their willingness to explore their perceptions of play and their role in effectively teaching young children. It is negatively affected by other factors, usually external factors (Szilagyi et al., 2015). Many classroom practice plans have been developed for teachers. Various programs have been found to increase children's physical activity, homework behavior, and school performance. Even for short-term courses, students can improve their academic performances in different areas, such as mathematics and reading. In fact, physical activities have the greatest impact on students who need the most academic support, students with cognitive impairments or learning difficulties. It is important to note that the literature shows that this improvement can be achieved with very little training. Given that physical activities in the classroom may have a potential

impact on the overall physical and academic health of children, some studies have focused on teachers' perception and use of physical activities in the classroom. All teachers should be encouraged to use exercises in class, especially those who are not currently using exercises (Dinkel et al., 2017).

In practice, some bachelor's degree programs are aimed at classroom teacher candidates to improve their physical skills. The education plans of future class teachers vary from country to country, and their teaching methods and the way they provide physical education courses change. In France, Germany and Turkey, they must participate in compulsory physical education. In other countries, such as the United States and Australia, physical education qualifications are provided through elective middle school physical education courses or certification programs. After completing an undergraduate degree, it depends on the federal state (Öncü, 2013).

Integrating physical activity into tutorial teaching isn't a replacement concept. People have long well-known that exercise will promote learning. However, as the edges and barriers of adding physical activity to the classroom are further explored, the term "activities" has become progressively outstanding in recent years. Despite the high barrier-benefit ratio, the mixing of physical activities remains an underutilized educational strategy. This might be as a result of many of us still see exercise and selection as the most significant sporting opportunities at school, or because many people are inactive (Mullins et al., 2019).

In response to the challenge of teacher training, we believe that teacher training cannot end with teacher training. On the contrary, teacher training includes formal (such as pre-school education, professional development plans) and informal (such as personal reading, peer discussion) learning experiences that teachers have to keep up with the times throughout their careers in their content area and their pedagogy (Greene et al.,2016). The teaching profession involves many complex tasks, and teachers need to be experts in their subjects and general fields (Maksimović et al., 2018). High-quality teaching and the effectiveness of school curricula have always aroused great interest in the education community; well documented in the literature, today's teaching is more complicated and demanding than ever before, requiring a lot of preparation and organization by teachers. It is also revealed that the teacher training program has been criticized for not training enough teachers to teach the next generation of students. In response to this dissatisfaction, the teacher training program focuses on the subject and the teaching training the students receive. The teachers created an alternative. A teaching method combines theory and practice. In addition, reflective teacher training was introduced as a method suitable for teacher training. The complexity of teaching and learning requires teachers to reflect on and adapt to different teaching situations (Tsangaridou & Polemitou, 2015).

With the transition to 12-year compulsory education in Turkey in 2012, the course, which was included in the program with the name of Games and Physical Activities instead of Physical Education, was renamed as Physical Education and Games with the change made in 2018 and was taught as 5 lesson hours in the 1st, 2nd and 3rd grades. In the 4th grade, the lesson time has decreased to 2. Physical Education and Game Lessons are taught by classroom teachers in primary schools. However, with the 2018 program at the university level, the name of the course is called 'Play and Physical Activities'. Studies have been conducted on the Play and Physical Activities lesson; experiences, attitudes, opinions and self-efficacy of the students of the classroom teaching program (Alemdağ et al., 2014; Dalaman, 2015; Tekkurşun Demir et al., 2019; İnan et al., 1997; İpek & Bayraktar, 2009; Öncü & Cihan, 2012; Yüksel & Tuncel, 2017). There is no study found in the national and international literature about teacher candidates' perception according to mediation effect of play perception and play and physical activities lesson. In this context, this study is an original research that is very important in terms of creating a new model for the course.

The aim of this research is to determine the effect of play perception on play and physical activities lessons on sensory and behavioral attitudes in the context of the mediating effect of cognitive attitude. In this regard, a hypothetical model was proposed by examining the relationships between the relevant sub-dimensions in line with the literature review. The figure below shows the hypothetical model:

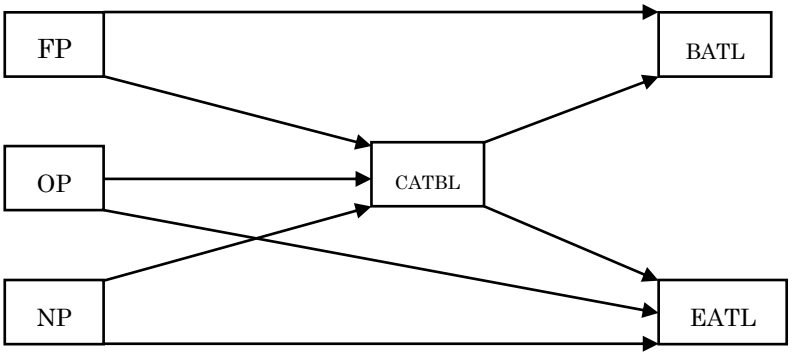

Figure 1. Hypothetical Model

Not. FP: Function of play and interest/curiosity/exploration in the play is a predictor variable; OP: The originality and purpose of the play, predictor variable; NP: The nature and source of the play, the predictor variable; CATBL: Cognitive attitude towards the benefits of the lesson, mediating variable; BATL: Behavioral attitude towards the lesson outcome variable; EATL: Emotional Attitude Towards the Lesson, outcome variable.

In the model, the sub-dimensions of play perception, interest in the play (FP), originality of the play (OP) and the nature of the play (NP) variables were the predictor variables, the cognitive attitude towards the lesson (CATBL) was the mediator variable, the behavioral attitude towards the lesson (BATL) and the sensory attitude towards the lesson. (EATL) are result variables. Accordingly, answers to the following questions will be sought:

1. Does the interest in the play significantly predict the behavioral attitude towards the lesson through the cognitive attitude towards the lesson?
2. Does the originality of the play significantly predict the behavioral attitude towards the lesson through the cognitive attitude towards the lesson?
3. Does the originality of the play significantly predict the sensory attitude towards the lesson through the cognitive attitude towards the lesson?
4. Does the nature of the play significantly predict the behavioral attitude towards the lesson through the cognitive attitude towards the lesson?
5. Does the nature of the play significantly predict the sensory attitude towards the lesson through the cognitive attitude towards the lesson?

2. Method

2.1. Research Model

The research model is a relational screening model that analyzes the relationships between; Play perception sub-dimensions Function of the play and interest/curiosity/exploration in the play (FP), Originality and purpose of the play (OP) and Nature and source of the play (NP) and Attitude sub-dimensions towards the play and physical activities lesson Cognitive attitude towards the Benefits of the Lesson (CATBL) behavioral attitude towards the lesson (BATL) and Emotional Attitude towards the lesson (EATL). The purpose of the relational screening model is to reveal the relationships between two or more variables and to make predictions in line with these relationships (Fraenkel, et al., 2012). The mediator variable handled in the research is Cognitive Attitude Towards the Benefits of the Lesson (CATBL), while the predicted variables are behavioral attitude towards the Lesson (BATL) and Emotional Attitude towards the Lesson (EATL).

2.2. Participant characteristics

A total of 310 teacher candidates studying in the classroom teaching department in the 2020-2021 academic year participated in the research. The study group was chosen by random method based on the voluntariness of the participants. Some characteristics of the research group are presented in the table below. Ethical and administrative permissions were obtained to conduct this study.

Table 1 Participant students (teacher candidates) characteristics

	Variable	**f**	**%**
Gender	Female	83	27
	Male	227	73
Year	1st year	53	17
	2nd year	88	28
	3rd year	84	27
	4th year	85	28
Doing sport activities	Yes	112	36
	No	198	64

Although it is seen that the majority of the participants (73%) are female students, the distribution by grade level is quite homogeneous. The status of participating in regular sports activities in their daily lives is 36% yes and 64% no.

2.3. Data Collection Tools

In order to collect the relevant data for the present study, two instruments were used in the data collection process; Play Perception Scale developed by Güneş et al. (2020) and Attitude Scale towards Play and Physical Activities Lesson" developed by Hazar and Tekkurşun Demir (2017) were applied. Confirmatory factor analysis (CFA) was run to check the suitability of these scales' psychometric properties, and the information about the scales was presented below.

2.3.1. Play Perception Scale (PPS)

It was seen that PPS was suitable for the factor analysis for construct validity [KMO value = .794 > .600, Bartlett Test Chi square 823.837 and p = .000]. Factor analysis of PPS was found to have a three-factor structure according to the Screeplot chart, and the levels of binding of substances to factors were between .390 and .772. Based on the conceptual approaches such as the sub-dimensions of the PPS, the epistemic sub-dimensions associated with the scale items, and the characteristics, structure and effect of the play, namely, "function of the play and interest/curiosity/discovery in the play", "the originality and purpose of the play", and "nature and source of play". The Cronbach's Alpha value was found to be .728 in the analysis for the internal consistency coefficient of the PPS. Therefore, it can be seen that developed PPS is a valid and reliable measurement tool that can be used in research (Güneş et al., 2020).

In order to examine the extent to which the scale fits the sample group, confirmatory factor analysis was performed on the data group. The results are shared in Table 2.

Table 2 *PP Fit Indexes*

Fit Indexes	**Value**
x^2	518.21
sd	167
RMSEA	0.08
IFI	.93
SRMR	.07
NNFI	.92
CFI	.93

As seen in the table, RMSEA values of .10, SRMR values below .10, and IFI, NNFI, and CFI values above .90 indicate good model-data fit (Thompson, 2000).

In addition, the Cronbach's Alpha Internal Consistency coefficient of the scale was calculated over .70 for the FP, OP and NP sub-dimensions. It was seen that the validity and reliability of the scale were provided in the sample group.

2.3.2. Attitude Scale towards play and physical activities lesson (ASPPAL)

As a result of the data analysis, a three-factor structure consisting of 19 items was obtained. Factor 1 consists of items 1, 12, 13, 14, 15, 19 and has a variance ratio of 39,31, and Cronbach's Alpha value is 0,88. items 20, 21, 22, 23, 25 are consisted of Factor 2, and it has a variance ratio of 8,28, and the value of Cronbach's Alpha is 0,79. Factor 3 consists of items 24, 28, 29, 31, 32, 33, 34, 35 and has a variance ratio of 7,48, and Cronbach's Alpha is 0,89. The total variance ratio explained by the scale is 55.07% of the total Cronbach's Alpha value: 0,78 According to confirmatory factor analysis, the result of standard adaptation indices is met (Hazar & Tekkurşun Demir, 2017).

In order to examine the scale-data group agreement, confirmatory factor analysis was performed on the data group, and the results are given in the Table 3.

Table 3 ASPPAL *Fit Indexes*

Fit Indexes	**Values**
x^2	445.83
sd	116
RMSEA	.09
IFI	.92
CFI	.92
SRMR	.10
NNFI	.91
RMR	.07

As seen in the table, RMSEA values of .10, SRMR values below .10, and IFI, NNFI, and CFI values above .90 indicate good model-data fit (Thompson, 2000).

The Cronbach's Alpha value calculated for the scale was also over .70 for each sub-dimension. The relevant scale is compatible with the data group which shows its validity and reliability.

2.4. Data Analysis

In the research, the path analysis of the models created according to descriptive statistics, and theoretical foundations were tested.

The basis of path analysis is regression analysis, but the main purpose of path analysis is to test the compatibility of the model examined with the data set as a whole. In the path analysis, the structural model created between the latent variables is tested. It is also possible to observe direct and indirect effects in the model with path analysis (Jöreskog & Sörbom, 1993; Leclair, 1981).

In the path analysis, after the estimations of the theoretical model were done, the fit indices were examined to decide the suitability of the model. In cases where the fit indices were not within the expected limits, the proposed modifications for the model fit were examined and applied.

Modification is usually made by adding a new path to the model set to zero or by adding error covariances between variables and it indicates the change in the chi-square value (Loehlin, 2004). The Maximum likelihood method was used as the estimation method. It is preferred because it provides good estimation in large sample and complex models and minimizes the discrepancies between covariances (Raykov and Marcoulides, 2006). The Sobel test was applied to test the significance level of the mediator variable in the model.

Before testing the measurement model, the data were prepared for analysis and the necessary assumptions were tested. First, the sample size was reviewed.

The number of samples calculated for EB=.30, α = .05, sd = 10 and Power[1-β] = .85 at the data collection process was 202, at the end of the data collection process EB=.30, α = .05, sd = 10, and Calculated with a sample number of 310 to be Power[1-β] = .975. In other words, the number of samples in the research is higher than the number of samples to be reached. In addition, the ratio of the number of samples to the number of parameters was examined for the adequacy test of the sample size (310/11).

The fact that this rate is higher than the recommended rate (28.18>20) is an indication of the adequacy of the sample size.

As a result of missing data analysis, it was observed that there was no missing data in the research. For the normality test, which is another assumption, single normality and multiple normality tests were performed. As a result of the single normality test, it was observed that the EATL sub-dimension did not show a normal distribution and the skewness coefficient was outside the [-1, +1] range.

As a result of extreme value analysis, two extreme values were observed for this variable. According to the Z test results, it was observed that two values for the EATL variable were outside the range of [-3, +3], and these data were excluded from the analysis. As a result of the re-applied normality analysis, it was observed that all variables provided normality with one variability.

Mahalanobis distance values were calculated for the multivariate outlier assumption. If the significance level of this value is less than .001, it is an extreme sign (De Maesschalck et al., 2000, Pallant, 2005; Tabachnick & Fidel, 2007). Since the significance level of this value calculated for the dependent variables in the study was higher than .001, the multivariate extreme value assumption was provided.

It was observed that the variables whose multiple scatter diagrams were examined for the multicollinearity assumption had a bivariate normal distribution. Scatter diagram shows that the relations between binary variables ranging from .25.to .49, and there is no multicollinearity problem.

For the multi-connection problem, VIF and Tolerance values were examined. For the variables in the study, the VIF value (FP =1.70, OP=1.40. NP=1.40, CATBL =1.44, BATL =1.13 and EATL=1.14) is greater than 10 and the Tolerance value (FP =.86, OP=.72, NP= .71, CATBL =.69, BATL =.89 and EATL=.88) not less than .10, indicates that there is no multicollinearity problem.

3. Results

The model proposed in the research is a model in which the mediation effect is tested. In the mediation test, partial and full mediation were tested. A decrease in the relationship between the predictive and predictor variables is defined as partial mediation, while the insignificance of the relationship is defined as full mediation.

Goodness of fit values were evaluated in the test of the theoretical model. First of all, the $\chi 2$ value, which provides compatibility between the population covariance and the sample covariance, was examined. Here, since the suitability of the theoretical model to the data is tested, the p value for the $\chi 2$ value is expected to be greater than .05 (H0= Model fits the population covariance matrix). The RMSEA value, which is an indicator of frugality, that is, that the model can improve its frugality in less predicted ways, was examined.

In addition, GFI, AGFI, and SRMR values expressing absolute fit and CFI and NNFI fit indices expressing incremental fit were determined to fit the model. RMSEA ≤ .10, GFI≥ .90, AGFI≥ .90, CFI ≥ .90, NNFI ≥ .90, SRMR ≤ .10 (Brown, 2015; Kline, 2015) criteria were considered for the fit values. Path analysis results of the first theoretically proposed model test are given in the Figure.

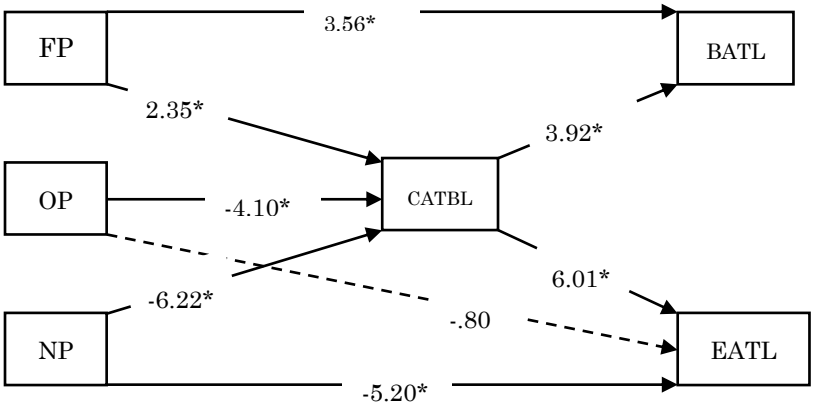

Figure 2. Model I - Path Analysis Model t-values Results

Not. FP: Function of play and interest/curiosity/exploration in the play is a predictive variable; OP: The originality and purpose of the play, predictive variable; NP: The nature and source of the play, the predictive variable; CATBL: Cognitive attitude towards the benefits of the lesson, mediating variable; BATL: Behavioral attitude towards the lesson, outcome variable; EATL: Emotional Attitude Towards the Lesson, outcome variable.

In the figure, if the t value exceeds -1.96 or +1.96 (|1.96|) it was interpreted at the level of .05; If it exceeds -2.56 or +2.56 (|2.56|), it was interpreted as significant at the .01 level (Hoyle, 1995). When the values of the path analysis related to the theoretical model are examined, the function of play, which is one of the predictor variables, and the behavioral attitude towards the lesson, which is the result variable of the interest variable in play (β = .12, t = 3.56, p <.01) and the mediating variable, Cognitive Attitude Regarding the Benefits of the Lesson (β = .20, t = 2.35, p <.05), were found to significantly predict variables. The originality and purpose of play significantly predicted the mediator variable, Cognitive Attitude Regarding the Benefits of the Lesson (β = .23, t = -4.10, p <.01), while the Emotional Attitude towards the Lesson variable predicted the outcome variable (β = .04, t = -. 80, p >.01) does not predict significantly. This non-significant path will be removed from the model and the model will be retested. The nature and source of the play variable Emotional Attitude Towards the Lesson (β = .29, t = -5.20, p <.01) and the mediator variable, Cognitive Attitude towards the Benefits of the Lesson (β = .34, t = -6.22, p <. 01) predicts the variables at a significant level. The mediator variable included the outcome variables of Cognitive Attitude Related to the Benefits of the Lesson, behavioral attitude towards the Lesson (β =.22, t = 3.92, p <.01) and Emotional Attitude towards the Lesson (β = .33, t =6.01, p <.01).) predicts the variables at a significant level. Therefore, all the relationships except the relationship between the originality and purpose of play and the variables of Emotional Attitude towards the Lesson are significant in the research.

The model of the t-test results for the new model (Model-II), which is revealed as a result of the path extracted according to the result of the Model I analysis, is given in the figure 3.

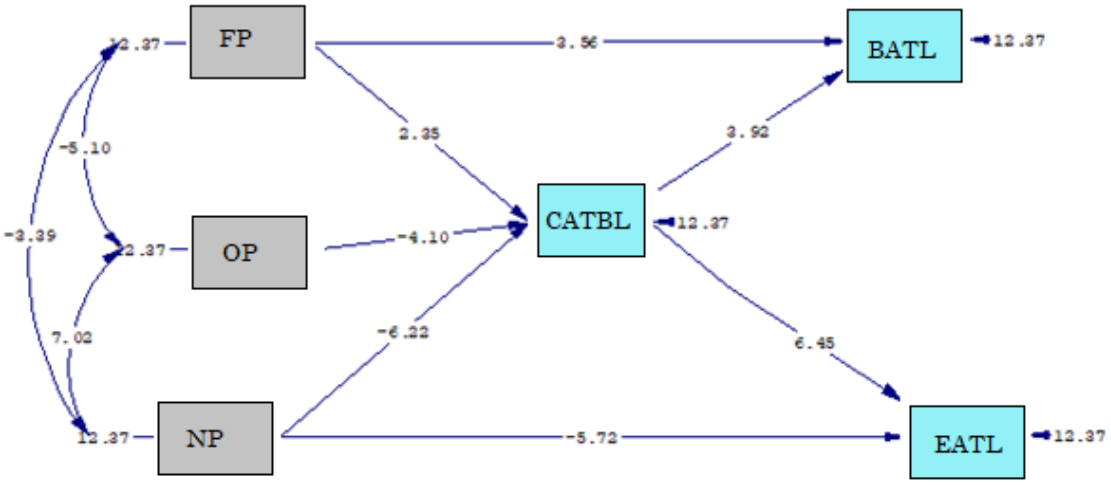

Figure 3. Model II - Path Analysis Model t-values Results

When T-values were examined, it was observed that the paths between all variables were significant. After the significance test of all paths, the fit indices were examined to evaluate the fit of the model, and the data are given in Table 4.

Table 4 *Model II Path Analysis Fit Indices*

Model	**Model Fit Indices**							
	x^2	**Sd**	**RMSEA**	**GFI**	**AGFI**	**SRMR**	**NNFI**	**CFI**
Theoretical Model	**6.68**	5	.03[.0-.09]	.99	.97	.022	.99	1.00

First of all, the chi-square value of the theoretical model (x2(5)=6.68 p>01) was examined and it was observed that it was not significant at the .01 significance level. The Chi-square value, which is an absolute fit index, is not expected to be significant. When other model fit indices are examined, RMSEA (.03) and SRMR (.022) values are less than .10; It is seen that the GFI (.99), AGFI (.97), NNFI (.99) and CFI (1.00) values are greater than .95.

According to all these analyzes, the theoretical model put forward by the researcher showed a perfect fit (Schermelleh-Engel et al., 2003; Thompson, 2000). No modification suggestions were observed for the model that showed a perfect fit. In addition, the 90% confidence interval values [.0-.09] examined for RMSEA were found to provide a good fit below .10. After the fit of the model was proven, the path coefficients between the variables, namely the direction and value of the relations, were interpreted.

The standard load values of the model are presented in the Table 5.

Table 5 *Theoretical Model β, Standard Error and R2 Values*

Independent variable	**Dependent variable**	***β***	**Std.Error**	**R^2**
Function of play and interest/curiosity/discovery play	Behavioral attitude towards the lesson	.60*	.04	.11
Cognitive attitude towards the lesson		.35*	.17	
Originality and purpose of play	Cognitive attitude towards the lesson	-.30*	.06	.28
Function of play and interest/curiosity/discovery in the play		.23*	.097	
The nature and origin of the play		-.39*	.06	
Behavioral attitude towards the lesson	Sensory attitude towards the Lesson	.43*	.06	.31
The nature and origin of the play		-.44*	.07	
*P<.01				

When the table is examined, a one-unit change in the function of the play variable, which is one of the variables that predict the behavioral attitude towards the lesson, creates a .60 unit positive change in the outcome variable. The variable of cognitive attitude towards the course causes a positive change of .35 units. In other words, the function of the play and cognitive attitude have a positive effect on behavior and attitude. These two variables together explain 11% of behavioral attitude, which is the outcome variable. This means that there are other variables that are not included in the study that explain the behavioral attitudes of pre-service teachers towards the lesson.

There are three variables that explain the outcome variable of cognitive attitude towards the lesson; Function of the Play, Nature of the Play and Originality of the Play. A one-unit change in the play function variable creates a positive change of .23 units. In other words, as the function of the Play increases, the cognitive attitude also increases. However, a negative relationship was observed with the variables of the nature of the play and the originality of the play. Increasing scores on these two variables cause a decrease in cognitive attitude. The nature of the play creates a change of .39, and the originality of the play creates a change of .30. These variables together explain 28% of the outcome variable. It is the statement that there are other variables that are not included in the research that predict cognitive attitude towards play.

Finally, it was observed that cognitive attitude showed a positive relationship for the sensory attitude towards the lesson variable and a negative relationship for the nature of the play variable. The cognitive attitude creates a change of .43 units, while the nature of play creates a change of .44 units. These two variables together explain 31% of the sensory attitude.

After the meaningfulness of the paths belonging to the theoretical model and the compatibility of the model was provided, the mediation test results proposed in the theoretical model were examined. For the mediation test, it was first examined whether the predictor variables significantly predicted the outcome variables.

For this, the predictive effect between the predictor variables and the outcome variables was examined one by one. For the behavioral attitude variable, the function of the play (β=.77, $p<.05$), the originality of the play (β=-.40, $p<.05$), and the nature of the play (β=-.21, $p<.05$) were determined for each of the predictive variables. For the behavioral attitude variable, the function of the play (β=.77, $p<.05$), the originality of the play (β=-.40, $p<.05$), and the nature of the play β=-.21, $p<.05$) were determined to be significant for each of the predictive variables. For the sensory attitude, the function of the play (β=-.13, $p>.05$), while it is not significant, the originality of the play (β=-.24, $p<.05$) and the nature of the play (β=-.59, $p<.05$). It was observed that the predictor variables were significant.

Thus, the first condition for the mediation test is provided for behavioral attitude (BATL) and play function (FP), play originality (OP) and play nature (NP) variables, and sensory attitude (EATL) for play specificity (OP) and nature of play (NP) variables

(Baron and Kenny, 1986). Since the first condition between the sensory attitude and the function of the play is not met, the mediation effect will not be observed. The other two rules for the mediation test are that the predictor variables predict the mediator variable and the mediator variable significantly predicts the outcome variables, respectively (Baron & Kenny, 1986). It was reported in the above model test that these rules were met (see Table 6). Finally, the relationship between the predictor and the outcome variable was observed before and after the mediator variable was added to the model (Baron & Kenny, 1986). The changes in the path coefficients before and after adding the mediator variable to the model are given in the Table 6.

Table 6 The changes in the path coefficients

	Before adding an intermediary variable		After adding the intermediary variable	
Predictive Variable	BATL	EATL	BATL	EATL
FP	.22*	-	.20*	-
OP	-.11	-.13*	-.06	-.04
NP	-.02	-.41*	.03	-.29

P<.01

As can be seen in the table, the coefficients of the paths whose mediation will be examined decreased when the mediator variable was added. Thus, the Sobel test was applied for the significance of mediation. The mediation test between play function and behavioral attitude ($z = 2.03$, $p < .05$) is significant. The mediation test result between play originality and behavioral attitude ($z = -2.84$, $p < .05$) and sensory attitude ($z = -3.48$, $p < .05$) was found to be significant. Finally, the mediation test between the nature of the play and behavioral attitude ($z = -3.32$, $p < .05$) and sensory attitude ($z = -4.48$, $p < .05$) was also significant. Thus, it was seen that the mediating effects of the model presented by the researcher were theoretically provided.

As a result, according to the fit indexes, t values and mediation test analysis results of the theoretical model, since the fit indices were high and the t values and mediation

effects were significant, the theoretical model was confirmed by not suggesting an alternative model.

4. Conclusions, Discussion and Recommendations

In this study, the hypothetical model established in line with the literature was tested in order to examine the mediation relationship between the sub-dimensions of the variables of attitude towards the play perception and physical activities lesson. According to the model test results;

1. There is a significant and positive direct relationship between interest in the play and behavioral towards the lesson. It is said that as the interest in the play increases, the behavioral interest in the lesson also increases. As the function of the game and the interest/curiosity/exploration in the game increase, the behavioral dimension towards the game and physical activities lesson also increases. In a study examining the opinions of teachers about the game and physical activities lesson, teachers stated the followings: The course book of the game and physical activities course is not suitable for the level of the students. The teachers make balancing movements as activities in the lesson. They use observation forms for measurement and evaluation. They have problems due to the lack of tools and equipment. The facilities, playgrounds, tools and equipment are insufficient and incomplete. The teachers added that the teaching program remained in the theory, and the problems in practice, and the knowledge and pedagogical competencies of the classroom teachers about the physical education lesson created problems in terms of teaching and efficiency of the lesson. As a result of the teaching practices applied to the teacher candidates, it was found that the novice teachers showed improvement in areas, such as focusing on teaching and identifying activities in line with the outcomes, adopting the importance of the course, preparing a lesson plan, creating materials, and adopting the stages in the course flow. It has been concluded that the physical activity levels of the primary school teacher candidates are insufficient, and therefore, effective educational approaches to increase their motivation in this subject should be emphasized. It has been found that the course "Physical Education and Sports Culture" has a moderate positive effect on the attitudes of prospective classroom teachers towards physical education and sports (Kazu & Aslan, 2014; Altun, 2016 ; Bayat et al., 2016; Bozdemir et al., 2015;Yüksel & Tuncel, 2017; Güven & Yıldız, 2014; Koç, 2017; Yılmaz, 2018).

2. Likewise, there is a linear relationship between the nature of the play and the affective attitude towards the lesson, and this relationship is negative. In other words, as the perception of the nature of the play decreases, the sensory attitude increases. The sub-dimensions that make up the game perception scale are defined as "Function of the game and interest/curiosity/exploration in the game", "The originality and purpose of the game" and "The nature and source of the game". In defining the sub-dimensions of the scale, epistemic thinking such as nature of knowledge, nature of knowledge, source of knowledge and authority/truthfulness, understanding and evaluation of knowledge, change of knowledge, processes of knowledge generation and nature of knowledge/knowing, authority/accuracy in knowledge and effort in acquiring knowledge are emphasized in epistemology literature. The propositions of the dimensions of the game have been taken into account, and the nature and source of the game sub-dimension consists of items that deal with when the game can be described as a game and the resources related to the game. The items in the emotional attitude towards the course sub-dimension deal with the attitudes regarding the necessity of the course in terms of the program. In this context, the perception that the game can be played without having knowledge about the game creates a negative perception about the necessity of the course in the program. Play is the child's natural activity, but it should not be forgotten that the game played by the child without having theoretical knowledge about the game will do more harm than good. For this reason, more studies should be carried out on the importance of Game and Physical Activities course in teacher training programs and more studies should be done on the necessity and purpose of this course. Since the data of the research was collected during the Covid-19 pandemic, it can be assumed that it affected the average scores of the students in the emotional attitude towards the course sub-dimension, which deals with the necessity of this course. As the perception of the nature of the game increases, the decrease in the emotional attitude reveals the insufficient level of knowledge about the importance of the game.

3. Looking at the mediation test results; The cognitive attitude towards the lesson, whose mediation is tested in the theoretical model, acts as a meaningful mediator between the function of the play and the behavioral attitude. This means that as the function of the play increases, your cognitive attitude towards the lesson increases, and as the cognitive attitude towards the lesson increases, the behavioral attitude towards the lesson increases. Regular

physical activity is important for the health and well-being of educational institution children, as well as up sports, musculoskeletal, and psychosocial development, and reducing the danger of overweight or obesity. it's absolutely regarding obesity, on the contrary, it is related to health, psychological feature and behavioral consequences(Van Cauwenberghe et al., 2013).

As the cognitive attitude towards the game and physical activities lesson increases, the function of the game and the interest/curiosity/exploration perception scores in the game as well as the behavioral attitude towards the game and physical activities lesson also increase. A research study, which aimed to examine the perceptions of students who are in 11-12 age group about the physical education lesson through the pictures they drew reached the following findings: A small number of the same sports branches are constantly repeated. The basic techniques related to them are learned. The perception of sports and sportive performance is at the forefront during lessons. The lesson is dominated by male students and students without any physical/mental disabilities. It has been found that the students perceive it as a lesson that gives happiness, held in an open area, and they associate the lesson with natural environmental elements. Considering their views on the outcomes of the game and physical activities course, it is seen that most of the classroom teachers (44%) stated that the outcomes of the course are suitable for the development of the students. Regarding the activities applied in the game and physical activities lesson, most of the classroom teachers (45%) stated that they had the students play free outdoor games, and draw and paint (Temel & Güllü, 2016; Can & Çava, 2018).

When the studies on pre-service teachers are examined, it is seen that there is a positive relationship between the attitudes and self-efficacy of the pre-service teachers towards the physical education lesson, and ithe findings show that the attitudes towards the physical education lesson are a significant predictor of the physical education lesson self-efficacy perception. In a study, it was found that the attitude scores of the teacher candidates who regularly do sports are significantly higher (Alemdağ et al., 2014). It is seen that university students who take the Physical Education and Play Teaching course stated that they benefit from different aspects due to the way the course was taught and the scope of the course. It was determined that among the reasons for choosing the course of the students of the Primary Education and Preschool Teaching departments, it was

determined that the educational games, physical education and sports teaching that will be necessary for them in their professional life were effective. At the same time, it was concluded that the attitudes of the participants with a sports background towards the physical education lesson are higher than the attitudes of those who regularly do sports. It has been observed that the attitudes of the pre-service teachers who exercise towards this lesson are higher, and the pre-service teachers who do not exercise do not have an idea about the importance of physical activity and consider it as wasting time (Caz et al., 2019; Ağırbaş et al., 2011; Tekkurşun Demir. et al., 2017; Güvendi & Serin, 2019).

4. When the mediating effect of the cognitive attitude between the authenticity of the play and the behavioral and sensory attitudes is examined, it is observed that it is significant. As the specificity of the play increases, the cognitive attitude decreases. The decrease in cognitive attitude causes a decrease in behavioral attitude and sensory attitude. The originality and purpose of the game sub-dimension includes items such as that the game is a unique learning area, that it should be performed by teachers for high-level benefit, and that it has unique materials. The cognitive attitude sub-dimension related to the Game and Physical Activities lesson includes items related to the individual benefits of the game and physical activities lesson in daily life. In this context, the originality of the game from an epistemological point of view turns it away from being a recreational area and transforms it into an educational area.

As the originality of the game increases, the cognitive and emotional attitude dimensions towards the game and physical activities lesson decrease. In a study, which aimed to revise the scale developed to measure the attitudes of first-year high school students towards physical education and sports, when the items selected for the scale are examined, it is seen that the benefits of physical education and sports are generally focused on enjoying and making use of free time. It was determined that pre-service teachers exhibited positive attitudes in the sub-dimensions of cognitive attitude towards the benefits of the game and physical activities lesson, emotional attitude towards the lesson and behavioral attitude. In the 4+4+4 education system, another study was conducted in the survey model, in which the views of administrators and teachers about Physical Education and Sports practices in the 1st, 2nd, 3rd, 4th grades of the Primary School were examined. The opinions of the school administrators and teachers participating in the study on the importance of Physical Education and Sports lessons in

our education system were taken, and it was concluded that Physical Education and Sports lessons were one of the basic needs of the child's development. It is observed that the students of physical education and sports teaching and coaching departments experience inadequacy in the planning, implementation and evaluation stages in terms of educational game playing self-efficacy (Demirhan & Altay, 2001; Ciris, 2020; Yürek, 2017; Genç, 2021). When the play, which is natural and beneficial to the individual due to its originality sub-dimension which includes the items "The child needs special toys and technological materials in order to benefit from the game at the highest level.", "The fact that the expected positive gains of the game are not observed in children during the playing process shows that the game is not beneficial for the child." is limited in the epistemological context, it is inevitable that the cognitive and emotional attitude of the child will decrease even if she continues to play.

5. It is seen that the cognitive attitude is a significant mediator between the nature of the play and the behavioral and sensory attitudes. As the nature of the play decreases, cognitive attitude increases, and the increase in scientific attitude causes an increase in behavioral and sensory attitudes. In other words, the decrease in the perception of the originality of the play indirectly causes an increase in behavioral and sensory attitudes.

As the score level related to the nature and source of the game decreases, the cognitive attitude towards the game and physical activities lesson and the behavioral and emotional attitudes increase depending on the increase in the cognitive attitude. Most of the evaluations of pre-service teachers about physical education and play teaching course consist of outcomes related to the course. The pre-service teachers stated that they learned many new games in this lesson. They realized the importance of this lesson for the development and education of children, on which subjects they should be careful, and they acquired various information about classroom management in this lesson. They stated that the lesson was not taught and they generally used game and physical activity lesson hours to close the gaps for other lessons. Most of the classroom teachers emphasized that the game and physical activities lesson is an important lesson in the primary school stage and it is important for the development of the child's health. The majority of the teachers stated that the game and physical activities lesson was done regularly, and the intensity of the other lessons did not affect their ability to do the game and physical activities lesson. The lack of knowledge and competencies of the classroom

teachers about the game and physical activities course affects their ability to conduct these lessons efficiently, and therefore, they have to teach mathematics, Turkish, etc., which are considered important in the time of the game and physical activities course. (Alıncak et al., 2015; Şentürk et al., 2015; Can Ceylan & Dalaman, 2017; Güven & Yıldız, 2014).

In the study titled 'Examination of Master's Theses in the field of Physical Education and Sports in Turkey between 2004-2014 in terms of various variables', it was found that the subjects Physical Education Curriculum, attitudes and opinions towards Physical Education and Sports, academic success, etc. were studied more in the theses, the sampling (study) groups used were mostly composed of students, and the majority of the theses were quantitative studies. In another study, which aims to examine the doctoral dissertations on Physical Education within the body of Higher Education Institutions in Turkey, the most frequently studied subjects are found attitudes, teaching, models, methods and techniques, performance, access, permanence, transfer and the evaluation and comparisons of the teaching programs. It has been seen that quantitative research is used the most as a research design and descriptive model is used most as a research model in the dissertations. In the sample groups, it was reached that the teachers and students were mostly used as the sample group (Ataş, 2015; Mısır, 2018).

Considering the relevant literature, the results of the current study and the discussion, the importance of this study becomes evident once again. In this context, it can be suggested to conduct mixed methods studies involving all stakeholders related to the game and physical activities course. Considering the mediating effect of the function of the game, it is seen that there is a very important relationship between the cognitive attitude and the behavioral attitude towards the game and physical activities course. Therefore, instead of knowing a game or a subject or movement, the importance of knowing about its function in creating permanent behavioral change emerges. In this context, it can be suggested that the lessons in the context of Physical Education and Play, starting from early childhood, including postgraduate education, should have theoretical and practical stages, and it can be recommended to increase the course hours especially in the primary school level, where the developmental level of children is at the highest level, by adding practice hours to the curriculum for these lessons.

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