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Investigation of Physical Literacy Attitudes of Secondary School Students

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Abstract

This study was conducted to examine the physical literacy attitudes of secondary school students. The study group of the research consisted of 458 secondary school students who continued their education in the Balçova district of Izmir province in the 2023-2024 academic year, and who were selected by simple random sampling. "Personal information form" and "Physical literacy attitude scale for secondary school students" were used as data collection tools. Information about the participants' gender, age, grade, and participation in school sports teams was obtained through the personal information form. The 5-point Likert type "Physical Literacy Attitude Scale for Secondary School Students," consisting of 34 items developed by Özgül, Semiz and Kangalgil (2023) was used. Since the data showed normal distribution, an independent samples t-test was used to analyze gender, and school sports participation variables, and a one-way analysis of variance (ANOVA) was used to analyze age and grade level variables. The statistical significance level was accepted as $p<0.05$. When the results are examined, male students' physical literacy attitudes are higher than female students'. The physical literacy attitudes of 11-year-old students were higher than those of 13-year-old students. The physical literacy attitudes of 5th grade students were higher than those of 7th grade students. The physical literacy attitudes of students in the school team were higher than those of students who were not.

Keywords: Physical Literacy, Attitude, Secondary School, Student

Introduction

Today, the rapid development of the internet and technology has radically changed the lifestyles of individuals. Especially with digitalization, working styles, entertainment and daily activities have become largely dependent on screens. Smartphones, computers, and digital media tools reduce the physical mobility of individuals and promote sedentary lifestyles. This situation directly affects both physical and psychological health and paves the way for many health problems such as obesity, musculoskeletal disorders and stress (Carl et al.,2022:2968). One of the ways to reduce the risks of this sedentary lifestyle is to improve the physical literacy of individuals. Physical activity is an important concept, especially for children in adolescence. The studies show that adolescents often spend their free time on the internet, on the phone, or in online games. (Chou & Chou, 2019; Sureda et al., 2020). At this point, physical literacy emerges as a concept that positively affects quality of life (Aksoy et al., 2024:142). Physical literacy is a concept that includes the knowledge, comprehension, motivation, self-confidence, and physical competence required to sustain participation in physical activity throughout one's life (Whitehead, 2010). According to Dudley (2015), physical literacy can be defined as a multifaceted concept encompassing a broad spectrum of knowledge, skills, understanding, and values. This comprehensive definition pertains to the ability to take ownership of purposeful physical activity and human movement throughout one's life, irrespective of physical or psychological boundaries. A different definition states that physical literacy is related to lifelong physical activity participation (Cale & Harris, 2018:284). The term physical literacy is defined as an individual's capacity for a physically active lifestyle (Longmuir & Tremblay, 2016:28). Physical literacy is considered a multidimensional concept that includes physical competence, motivation, self-confidence, knowledge, and understanding necessary for the individual to maintain lifelong participation in physical activity. It also refers to the individual's capacity to participate confidently and competently in different physical activities.

When the literature is examined, it reveals that physical literacy provides versatile and comprehensive benefits to individuals (Taş & Hürmeniç Altunsöz, 2021:116). Physical literacy helps individuals reach their potential by supporting mental and emotional development (Gehris et al., 2018; Lysniak, 2020), improves self-esteem and self-worth by increasing motivation and confidence (Whitehead et al, 2018; Almond,2013), positively contributes to academic success, improves the individual's physical literacy by increasing participation in physical activity, and supports safe physical activity (Savelsbergh & Wormhoudt,2018:33), It is stated that children's improving basic movement skills helps them adopt a lifelong active lifestyle (Rudd et al., 2020:2).

A physically literate individual is a skilled, confident, and motivated person who participates in physical activities throughout life (Aslan & Ünlü, 2023:67). Therefore, in addition to movement skills, physical literacy supports emotional development such as confidence and motivation, social development such as cooperation and sharing, and cognitive development such as problem solving and creativity (Aksoy et al., 2024:143). The development of students' physical literacy comprises specific steps. This process refers to a productive and useful period in which the habit of participating in physical activity throughout life is encouraged, starting from an early age. This is achieved by creating environments where experiences and important learning are presented, enriched in lesson environments such as physical education lessons (Castelli et al., 2014; Hastie, 2017). Therefore, experiencing a quality physical education lesson, especially for students at the secondary school level, and thus achieving holistic development have recently become one of the important issues both in the world and in our country (Liu & Chen, 2021:100). In this context, physical literacy is emphasized by the

Ministry of National Education (MEB) as a basic skill that should be acquired within the scope of physical education classes (MEB, 2018). It is planned that this concept will be included more in educational programs and will support the physical and mental health of young people. In a study by Cairney et al. (2019), more than 2,000 students in 5th and 7th grades in Canada were examined. It was determined that providing an inclusive physical education and sports class environment for children and adolescents, while drawing attention to motor skills and motivation, can prevent a lack of physical competence and self-confidence when associated with positive emotional behaviors. Supporting this perspective, Shortt et al. (2019) stated that physical literacy is affected by psychological and environmental factors along with physical skill levels. Therefore, the attitudes towards physical literacy of secondary school students play a critical role in their adoption of a lifelong active lifestyle. Supporting physical literacy for this age group is of great importance for both physical and psychosocial development.

The role of multifaceted stakeholders is important in the meaningful development of physical literacy levels in individuals, especially during the most critical developmental stages primary and secondary school, in terms of holistic development (Taş & Hürmeniç Altunsöz, 2021:118). At this stage, individual and environmental factors play an important role in shaping students' attitudes towards physical literacy. Among these factors, variables such as gender, class level and participation in school sports teams are thought to have significant effects. Gender differences in physical activity participation are widely discussed in the literature, and it is observed that male students generally have higher rates of physical activity participation than female students (Stodden et al., 2008:302). Physical literacy development is different in childhood and adolescence. When movement skills are not acquired at a young age, attitudes towards physical activity can be negatively affected at older ages. This situation reveals that participation in physical activity may decrease with age (Cairney et al., 2019:377). In parallel, it is expected to also affect, with age, class levels. Students who take part in school sports teams lead a physically active lives. Therefore, it is possible to expect that the physical literacy levels of participants in school teams will be high (Çalı, 2024:113).

In this context, the study aims to examine the physical literacy attitude levels of secondary school students by considering the variables of gender, age, class level, and participation in school teams. When the literature is examined, studies on attitudes towards physical literacy of secondary school students are limited. This situation reveals the importance of the research.

Material and Method

Research Model

This research is a quantitative study and was conducted using the survey method. The survey method is defined as an approach that explains a past or current situation as it exists (Büyüköztürk,2018:102). In the descriptive research process, the stages of determining the research problem and objectives, defining the variables, selecting the sample, collecting data, and analyzing the data are carried out systematically. In this study, an attempt was made to reveal whether the physical literacy attitudes of secondary school students show differences according to the variables of gender, age, grade level, and participation in the school team.

Research Group

As a result of the calculation performed with a 5% margin of error (p) and a 5% deviation (q), using the simple random sampling method, a sample size of 384 students was determined to be appropriate (Yazıcıoğlu & Erdoğan, 2004:49). In this context, permission was obtained

from the Izmir Provincial Directorate of National Education, and a total of 458 secondary school students studying in the Balçova district of Izmir constituted the sample group.

Table 1. Demographic characteristics of the participants

Variables	Sub-Groups	N	%	Total
Gender	Female	231	50,4	458
	Male	227	49,6	
Age	10	23	5	458
	11	125	27,3	
	12	148	32,3	
	13	135	29,5	
	14	27	5,9	
Class	5	110	24	458
	6	168	36,7	
	7	140	30,6	
	8	40	8,7	
Participation in The School Team	Yes	132	28,8	458
	No	326	71,2	

Data Collection Tools

"Personal information form," prepared by the researchers, and "Physical literacy attitude scale for secondary school students," developed by Özgül, Semiz, and Kangalgil (2023), were used. With the personal information form, information about the participants' gender, age, grade level, and participation in the school team variables was obtained.

Physical Literacy Attitude Scale For Secondary School Students

The physical literacy attitude scale consists of 34 items and 8 sub-dimensions. The sub-dimensions are Purposiveness (6 items), Being Healthy and Active (4 items), Cooperation and Partnership (6 items), Processing (5 items), Process (5 items), Barriers (3 items), Behavior (3 items), and Practices (2 items). The total variance explained is 66.81%. There were no reverse-scored items. Cronbach's alpha coefficient was used for reliability analysis. This coefficient was found to be 0.85 for the Purposefulness dimension, 0.78 for the Health and Being Active dimension, 0.74 for the Collaboration and Partnership dimension, 0.77 for the Processing dimension, 0.81 for the Process dimension, 0.74 for the Barriers dimension, 0.73 for the Behavior dimension, and 0.71 for the Practices dimension. The overall reliability coefficient of the scale was found to be 0.93.

Table 2. Descriptive statistics related to the research

Scale	N	$\bar{x}$	Skewness	Kurtosis	Cronbach's Alpha

Physical Literacy Attitude	458	3,47	-,634	,695	,910

Data Analysis

The data were analysed using SPSS 29.0 statistical package program. The reference values of skewness (-3) and kurtosis (+3) were considered in evaluating the data distribution's suitability for normality (Karagöz, 2021). As the reference values were derived from the scale employed in the study, parametric tests were employed for both pair-wise and multiple comparisons. Descriptive statistics, t-tests, and analysis of variance (ANOVA) were conducted a significance level of 0.05. In the comparisons, the effect size power was expressed by the η^2 formula, with the criteria ".01 small; .09 medium; .25 large" taken into consideration (Tabachnick & Fidell, 2015:55).

Findings

Table 3. T-test Table Results For The Variable of Gender

Gender	N	x̄	Sd	t	p	η^2
Female	231	3,36	,614	-3,423	**,001***	**,032**
Male	227	3,56	,656			

Table 3 shows the t-test results for the gender variable. When the physical literacy scores were examined, the difference in favour of male students was found to be significant ($p<0.05$). The gender difference has a weak effect (η^2) on the total scale score.

Table 4. T-test Table Results For The Variable Of Participation in The School Team

Participation in The School Team	N	x̄	Sd	t	p	η^2
Yes	132	3,69	,613	4,974	**,001***	**,051**
No	326	3,37	,632			

Table 4 shows the t-test results based on participation in the school team. When the total score of the scale was analyzed, a significant difference was found in favor of those who participated in the school team ($p<0.05$) The difference in participation in school teams has a weak effect size (η^2) on the total scale score.

Table 5. Analysis of Variance (ANOVA) table Results for age variable

Age	N	x̄	Ss	f	p	η^2
10	23	3,43	,604	2,540	**,039*** **11-13***	**,022**
11	125	3,57	,631			
12	148	3,51	,671			
13	135	3,34	,628			
14	27	3,36	,569			

Table 5 shows ANOVA results according to the age level variable. According to the age variable, a significant difference, between 11- and 13-year-olds was reported ($p<0.05$). 11-year-old students have higher physical literacy attitude scores than 13-year-old students. The difference between the ages has a weak effect (η^2) on the total scale score.

Table 6. Analysis of Variance (ANOVA) table Results for class variable

Class	N	x̄	Ss	f	p	η²
5	110	3,58	,689	4,009	**,008*** **5-7***	**,026**
6	168	3,53	,608			
7	140	3,35	,671			
8	40	3,32	,458			

Table 6 shows the ANOVA according to the class level variable. A significant difference was found between the 5th and 7th classes according to the class level variable ($p<0.05$). 5th grade students have higher physical literacy attitude scores than 7th grade students. The difference between the classes has a weak effect (η^2) on the total scale score.

Discussion and Conclusion

This research aims to examine how attitudes toward physical literacy differ according to variables such as gender, age, grade, and participation in school sports teams. The findings obtained have been discussed in light of these variables.

When physical literacy attitude scores were examined, a significant difference was found in terms of the gender variable in favor of male students. When the literature was examined, Iğdır et al. (2024) found that the mean scores of male students' perceived physical literacy levels were higher than those of female students in their study on children aged 10-14 years. The study conducted by Chen et al. (2024) revealed that boys scored higher than girls in the sub-dimensions of physical literacy (sports knowledge, emotion, and athletic capacity). In the research conducted by Gerger (2022), it was found that the physical literacy levels of male high school students were higher than those of female students. A study conducted by Arnett (2017) similarly revealed that male students have higher levels of physical literacy than female students. These studies support the findings of the current study. This may be associated with traditional gender roles that associate physical ability with masculinity and provide boys with more incentives and opportunities to participate in physical activities (Luo,2024). According to the Social Ecological Model, these differences are related to the social environment (Zhang et al., 2023:196), family expectations, and cultural norms that encourage more physical activity in boys than in girls (Si et al., 2017; Zong & Si, 2022). In addition, Self-Determination Theory suggests that boys may receive more support from their environment for autonomy, which in turn encourages higher intrinsic motivation for physical activity (Peng & Wu, 2024:176). The cultural expectation that boys should be physically active and competitive may also contribute to higher physical literacy levels (Cheng & Fan, 2022:136). In the study conducted by Cengiz (2023), no significant difference was found in the perceived physical literacy levels of high school students, according to gender. The fact that the sample group included in the study consists of high school students, that the scale used is different, and that the students reside in various geographical locations can be evaluated as factors that create a difference from the findings of the current study.

The study found that 11-year-old children have higher physical literacy attitudes than 13-year-old children. When examined in terms of grade variables, fifth-grade students have higher

physical literacy attitude scores compared to seventh-grade students. Since age level and grade level progress in the same direction, the two findings support each other. For this reason, these two variables were evaluated in the same paragraph and discussed in relation to the literature findings. In a study by Chen et al. (2024), it was found that 5th and 6th-grade students have higher levels of physical literacy compared to 7th, 8th, and 9th-grade students. In a study, conducted by Liu (2020), the physical competence scores for physical literacy among 6th-grade students were found to be higher than those of 7th-grade students, while 7th-grade students scored higher in the knowledge/cognitive domain compared to 6th-grade students. When examining the findings, the scores for attitudes towards physical literacy decrease as age and grade level increase. This decrease may be related to the decrease in students' time spent on physical activities due to the increasing school load and exam stress with higher grade level. The decrease in physical literacy attitude levels with increasing grade level may be attributed to increasing exam stress and decreasing time spent on physical activities as students progress through school. As students grow older, the decrease in their levels of physical activity may contribute to the observed decline in physical literacy, as they transition towards academic performance (Hu et al., 2020:72).

When the physical literacy attitude scores were examined in the study, it was found that the scores of the students who participated in the school team were higher than those who did not participate. Çalı (2024) stated in his study that the physical literacy levels of secondary school students participating in school sports were high. Yılmaz, Zorlu, and Aslantürk (2023) found that the levels of physical literacy, physical literacy perception, attitudes, and behaviors towards physical activity were high in individuals who engage in sports. In addition, in a study examining the perceived physical literacy of high school students, it was observed that participation in sports activities also increased the level of perceived physical literacy (Cengiz, 2023:89). Parpa et al. (2023) stated that in their study on female young athletes, there was a significant difference in perceived physical literacy scores compared to non-athletes. Sunda et al. (2022) reported that a study conducted in Croatia, on adolescents aged 14-18, found that students participating in sports activities had higher physical literacy scores than those who did not. The studies conducted in the field confirm the findings of our current study. Participation in school sports teams helps individuals develop physical awareness, movement competence, and active living awareness. This situation can be considered a factor contributing to the increase in physical literacy attitude levels.

As a result, it was observed that students who participated in school sports teams had higher attitude scores, physical literacy attitudes were higher in male students, and scores decreased as age and grade level increased, and attitude scores of students who participated in school sports teams were higher.

In order to increase girls' participation in physical activity, parents should not limit it to boys only but also support girls. In addition, it is recommended that teachers and families direct children to activities that develop physical literacy outside of school in order to reduce the stress of exams and school that increases with age and grade level.

This research is limited to secondary school students aged between 10 and 14 and residing in the Balçova district of Izmir. It is thought that expanding the sample by including individuals educated in different provinces, detecting regional differences, and broadening the research by adding adult individuals to the population can reveal possible different results and the reasons for these differences in detail.

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