

Evaluation of Play Skills of Primary School Students Playing Traditional Children's Games¹

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Abstract

This study was conducted to evaluate the physical activity levels and game performances of primary school students participating in traditional children's games. A survey model, one of the quantitative research methods, was used in the research. The sample of the research consisted of 16 students who participated in the final matches of traditional children's games in the 2021-2022 academic year and were determined according to the game region. In the research, data were collected by using the "System for Observing Fitness Instruction Time (SOFIT)" and "Game Performance Assessment Instrument (GPAI)" through the behavioral observation method. Descriptive statistics, Mann Whitney U test, and correlation analysis were used in the analysis of the data. According to the research findings, while the students showed the most standing behavior, the level of moderate-vigorous physical activity (MVPA) was at the desired level. It has been determined that the GPAI components are at a medium level in the case of skill application, while the other components are at a good level in decision-making, support, game participation, and performance. No significant difference was found in MVPA and game performance by gender. While a positive significant relationship was found between MVPA and the GPAI component of game performance, no significant relationship was found between MVPA and other GPAI components. As a result of the research; it was concluded that primary school students playing traditional games had good MVPA levels and sufficient game skills. Based on the results of the research, it can be suggested to use traditional games in physical education lessons and to create lesson content for the development of tactical awareness of students.

Keywords: Castled Dodgeball Game, Game Performance, Moderately-Vigorous Physical Activity (MVPA), Primary School, Sofit, Traditional Games

Geleneksel Çocuk Oyunları Oynayan İlkokul Öğrencilerinin Oyun Becerilerinin Değerlendirilmesi

Öz

Bu çalışma, geleneksel çocuk oyunlarına katılan ilkökullü öğrencilerinin fiziksel aktivite düzeyleri ve oyun performanslarının değerlendirilmesi amacıyla yapılmıştır. Araştırmada nicel araştırma yöntemlerinden tarama modeli kullanılmıştır. Araştırmanın örneklemini, 2021-2022 eğitim öğretim yılında geleneksel çocuk oyunlarının final maçlarına katılan ve oyun bölgesine göre belirlenmiş 16 öğrenci oluşturmuştur. Araştırmada veriler, davranışsal gözlem metodu aracılığıyla, "Fitness Eğitimi Gözlem Formu" ve "Oyun Performansı Değerlendirme Gözlem Formu" kullanılarak toplanmıştır. Verilerin analizinde tanımlayıcı istatistikler, Mann Whitney U testi ve korelasyon analizi yapılmıştır. Araştırma bulgularına göre, öğrenciler en fazla ayakta durma davranışı gösterirken, orta-şiddetli fiziksel aktivite (OŞFA) düzeyi istenen düzeyde bulunmuştur. Oyun performansı bileşenlerinden beceri uygulama durumunda orta düzey, diğer bileşenlerden karar verme, destekleme, oyun katılımı ve performans durumlarının iyi düzeyde olduğu tespit edilmiştir. Cinsiyete göre OŞFA ve oyun performansında anlamlı farklılığa rastlanmamıştır. OŞFA ile oyun performansının oyuna katılım bileşeni arasında pozitif anlamlı ilişki tespit edilirken, OŞFA ile diğer oyun performansı bileşenleri arasında anlamlı ilişkiye rastlanmamıştır. Araştırmanın sonucunda; geleneksel oyunlar oynayan ilkökullü öğrencilerin OŞFA düzeylerinin iyi olduğu ve oyun becerilerinin yeterli olduğu sonucuna varılmıştır. Araştırma sonuçlarından hareketle, beden eğitimi derslerinde geleneksel oyunların kullanılması, öğrencilerin taktik farkındalıklarının geliştirilmesi için ders içerikleri oluşturması önerilebilir.

Anahtar Kelimeler: Kaleli Yakan Top Oyunu, Oyun Performansı, Orta-Şiddetli Fiziksel Aktivite, İlkokul, Sofit, Geleneksel Oyunlar

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Introduction

Different researchers have made various explanations about physical activity in the literature. The concept of physical activity is bodily movements performed by expending energy through the skeletal muscle system (Honas et al., 2008). This definition has been generally accepted by researchers. Physical activity; supports growth and development by affecting the bone development and health of children (Chow et al., 2015). It improves academic performance by improving attention (de Greeff et al., 2018; Pişkin and Alpay, 2019), and is an important supporter of improving physical and mental health (Zhang et al., 2017). Physical activity not only contributes to the mental health of children with normal development (Biddle and Asare, 2011) but is also very effective in adapting to society and improving the motor skills of children with special needs (Luymes et al., 2022). In the insufficiency of physical activity, a decrease is observed in the muscle ratio of the individuals, while an increase in the fat ratio is observed. Increasing fat rate brings along obesity (Ceballos et al., 2020; Tanaka et al., 2020; Yang and He, 2018). In addition to obesity, many chronic diseases such as diabetes, heart disease, hypertension, rheumatoid arthritis, cancer, and gallbladder disorders are associated with a lack of physical activity (Booth et al., 2011; Elliott et al., 2022).

Children who participate in daily activities, in-school games, and free time activities gain physical fitness by improving their health and skills (Abdulla et al., 2022). As the duration and frequency of physical activity increase, physical fitness parameters also improve (Caspersen et al., 1985). There are many suggestions in the literature for individuals to maintain their physical fitness. First of all, the World Health Organization recommends that individuals between the ages of 5-17 should do at least 60 minutes of moderate-vigorous physical activity (MVPA) per day (WHO, 2020). While low-vigorous physical activities (LPA) also contribute to the individual, MVPA provides more benefits in disease prevention and health promotion (Poitras et al., 2016). Through physical education classes in schools, children's participation in MVPA is ensured (Dania et al., 2017; Weaver et al., 2018). Most countries aim to increase the level of physical activity by making primary school physical education compulsory. For example, the United States (Ramer et al., 2021), Australia (Dudley et al., 2012), Belgium (Iserbyt et al., 2022), China Hong Kong (Chow et al., 2008), Shanghai, China (Zhou et al., 2022), Korea (Lee, 2019), Maldives (Abdulla et al., 2022), Mexico (Hall-López et al., 2019), Turkey (Temel and Kangalgil, 2021) and Vietnam (To et al., 2020), countries such as act according to this goal.

International guidelines recommend that children should participate in moderate-vigorous physical activity (MVPA) for at least 50% of physical education class time. The MVPA value is obtained by dividing the time spent by all students in MVPA by the total course time (Iserbyt et al., 2022). Since acting by the MVPA value will increase the quality of the physical education lesson,

physical education teachers should give the necessary incentives to their students (Baghurst et al., 2015). MVPA can occur in normal walking or movements equivalent to it, or in movements that require more energy such as running, jumping, and shooting (McKenzie et al., 1992). When the literature is examined, it has been found that students can reach the reference value of 50% MVPA in primary school physical education classes (Kwon et al., 2020; Li and Wang, 2019). When a game-based physical education lesson is taught to students, the internationally accepted reference value can be easily reached (Cocca et al., 2020; Harvey et al., 2016; Iserbyt et al., 2022). In addition, the MVPA reference value is reached during break times when students have the opportunity to play in the school environment (Hall-López et al., 2019; Springer et al., 2013). Today, contrary to the benefits of technology, some disadvantages come with it. One of these negativities is the decrease in physical activity. In fact, in studies conducted with primary school students, it has been found that students do not do MVPA for at least 60 minutes every day (Hall-López, 2021; Manyanga et al., 2019; McKenzie and Smith, 2017). This situation leads students to play games that encourage action. In particular, when traditional games are used in physical education lessons, the objectives of the lesson will be achieved (Temel and Kangalgil, 2021; Temel, 2022).

In physical education and sports classes, children improve their motor skills, abilities, and a game performance by doing physical activity (McKenzie and Lounsbery, 2014; Pişkin et al., 2020). Game performance (GPAI) is a multidimensional system with decision-making, skill application, and support components in it. At the same time, GPAI shows children's tactical problem-solving ability in the game (Oslin et al., 1998). With the use of small ball games and game performance components for primary school students, students' learning skills are enhance (Lubay and Purnama, 2020). Actions such as making decisions by the players who do not have the ball, supporting the teammate with the ball, defending the opponents, protecting the teammate, and adjusting the position according to the game progress are important (Mitchell et al., 2013). Tactical solutions are mostly used in team-based games. The superior performance in these games depends on how well the object control is done. In addition, students who can control objects well are considered to be talented and have good physical competencies (Cohen et al., 2014). In addition to object control, good displacement and balancing skills affect game performance (Balakrishnan et al., 2011; Barnett et al., 2009).

When the studies in the literature are examined, it is predicted that game performance can be affected by many situations. While gender status did not affect the game performance of primary school students, the game performance of immigrant students was found to be better compared to native students (Puente-Maxera et al., 2020). It has been explained that while boys were found to be better at object control, boys and girls were at a similar level in terms of game performance (Miller et al., 2019). In addition, when female students receive education in single-gender classrooms, they participate in games more than girls studying in mixed classrooms (Pritchard et al., 2014). It can be

said that female students gradually move away from physical activity as they become wince from male students as their age progresses. Less active students will tend to weaken their technical skills towards games. It has been found that students with good technical skills are better at decision-making skills compared to technically weak students (Lopes et al., 2016).

The castled dodgeball game (CDG), which is within the scope of traditional children's games, is considered as a team game since it is played with 8 players each. Since technique, competence, participation in the game, tactics, and strategy are at the forefront of winning team games, it is important to know the game performances of the students. Based on this importance, the study was conducted to evaluate the game skills of primary school students playing traditional children's games. Invasion (basketball, badminton, football, handball, volleyball) games were used in previous studies evaluating moderate to vigorous physical activity (MVPA) level and game skills (Cohen et al., 2014; Gouveia et al., 2019; Miller et al., 2019; Pritchard et al., 2014). In this research; in physical education classes, students' MVPA durations and game performance levels will be found out by using the CDG, which is included in traditional games.

Method

Model of the Research

In this research, the descriptive method was applied to explain the current situation. For this reason, the situation was tried to be explained with the help of the behavioral observation method. Behavioral observations; it is done with the help of choosing a tool to record behavior, observing individuals for that behavior, and checking the points on the scale reflecting the behaviors (Büyüköztürk et al., 2020: 145-146; Creswell, 2020).

Research Group

The sample of the research consisted of 4th-grade students who continued their education in Konya Karapınar and participated in the traditional children's games festival. The sample group was chosen purposefully in order to conduct an in-depth analysis (Büyüköztürk et al., 2020: 92). Students participating in the traditional children's games festival played the game of castled dodgeball game for at least 8 weeks each. Within the scope of the festivities, the castled dodgeball game was played over 3 sets. Among the students participating in the games, 50 students from 3 different games were observed. 16 students who played in all sets and were determined according to their playing positions were included in the study. In research on System for Observing Fitness Instruction Time (SOFIT), it is known that it is acceptable to observe more than 4 students (McKenzie et al., 1992) or more than 15 participants in each observation (Büyüköztürk et al., 2020: 97; Creswell, 2020: 195). Accordingly,

it is considered that the research sample is sufficient. The demographic characteristics of the participants are presented in Table 1 in detail.

Table 1

Demographic Characteristics of the Students Participating in the Study

Variable	Subcategories	f	%	Total
Gender	Boy	8	50,0	
	Girl	8	50,0	
School	Primary school A	4	25,0	16
	Primary school B	4	25,0	
	Primary school C	2	12,5	
	Primary school D	2	12,5	
	Primary school E	2	12,5	
	Primary school F	2	12,5	

Castled Dodgeball Game

Traditional children's games festival is organized every year at 2nd and 9th grade levels under the coordination of provincial national education directorates. The festivities begin in the second course semester and continue until April and May. There is a castled dodgeball game (CDG), played as a mixed (girl/boy) game that 4th-grade students can participate in. CDG, there are 8 players (4 girls / 4 boys) in a team. While 7 of the players are on the field, 1 player moves to the outside line area as a goalkeeper. The goalkeeper can enter the game at any time of the game. In CDG played on the volleyball court (9m*18m), the goal is to hit the opponent's players with the ball or eliminate all players by making the opponent commit an area violation. Eliminated players are not completely removed from the game, they continue to shoot at the opponent by moving to the area where the goalkeeper is. The team that wins 2 sets of the game out of 3 sets wins the game. Set lengths vary according to the elimination time of the players. Performer substitutions must be made between the same genders. 3 referees, including 1 middle referee and 2 line referees, direct the game (MEB, 2015; Temel and Kangalgil, 2021).



Photograph: Castled Dodgeball Game

Data Collection Tools

As a data collection tool; “System for Observing Fitness Instruction Time (SOFIT)” and “Game Performance Assessment Instrument (GPAI)” were used.

System for Observing Fitness Instruction Time (SOFIT)

There are 5 types of activities in this observation form (1-Lying down, 2-Sitting, 3-Standing, 4-Walking, 5-Very active, which corresponds to running, or activity with higher energy expenditure). Students are observed every 10 seconds during the lesson and their appropriate physical activity is evaluated. If the student moves from a slow activity to a fast one during observation, the fast one is marked. For example, if the student gets up and starts running while he is sitting, the running option is selected for the student. At the end of the 12-minute observation, the average physical activity scores of the students are calculated. When the percentage of walking and running activities of students is greater than 50%, it is assumed that moderate-vigorous physical activity (MVPA) is at the desired level (McKenzie, 2015).

Two different observers evaluated the reliability of the observation form. Inter-observer reliability was made according to the formula $[(\text{Number of agreeing} / \text{Total number of opinions}) * 100]$, and consistent results above 80% were sought (McKenzie, 2015). As a result of the analysis $[(1111 / 1191) * 100]$, a reliable value of 93.28% was obtained among the observers.

Game Performance Assessment Instrument (GPAI)

GPAI was developed by Oslin et al. (1998) to monitor tactical skills in team sports. The observation form includes decision-making, skill practice, and support components. These components are adapted to the castled dodgeball game, which is included in traditional children's games. The decision-making index, skill application index, and support index were calculated by observing the selected students. Afterward, the game performance and game participation of the students observed through the indexes were calculated. While observing the decision-making component in the castled dodgeball game; behaviors of preparing for the pass and shooting by paying attention to the area lines, deciding to catch the ball from the opponent, and giving the ball to a friend who can shoot effectively in the area were observed. While observing the skill component; effective passing of the players in the area to tire the opponent, hitting the opponent, throwing a hard ball close to the opponent, and trying to keep the ball in his team during the shot were observed. In the support component, taking the appropriate position to receive the balls coming from the own goal, and pulling the barrier in order not to let the ball pass to the opponent were observed. Table 2 shows how the players are scored in detail.

Table 2

Calculation of Students' Game Performance Indexes

Index	Calculation Criteria	Example Calculation (1. Player)
Decision-making index (DMI)	Number of appropriate decisions / Number of inappropriate decisions	8,5 / 1,5 = 5,66
Skill execution index (SEI)	Number of correct skill impressions / Number of incorrect skill impressions	7 / 1 = 7
Support index (SI)	Number of appropriate support behaviors / Number of inappropriate support behaviors	9 / 1 = 9
Game Performance	(DMI + SEI + SI) / 3	(5,66 + 7 + 9) / 3 = 7,22
Game Involvement	Number of appropriate decisions + Number of inappropriate decisions + Number of correct skill impressions + Number of incorrect skill impressions + Number of appropriate support behaviors	8,5 + 1,5 + 7 + 1 + 9 = 27

Inter-observer reliability is examined with the Mann-Whitney U test. The test results are shown in Table 3 in detail.

Table 3

Inter-Observer Game Performance Reliability Analysis

Skills	Observer	Rank average	Rank sum	U	P
Decision-making	1	16,41	262,50	126,500	,955
	2	16,59	265,50		
Skill execution	1	16,13	258,00	122,000	,838
	2	16,88	270,00		
Support	1	16,63	266,00	126,000	,956
	2	16,38	262,00		

When Table 3 is examined, it is seen that the scores of the observers are consistent ($p > .05$).

Procedure

An ethical report was obtained from the “Scientific Research and Publication Ethics Committee of Niğde Ömer Halisdemir University” (28/04/2022 and KARAR-2022/05-51) and the study started in the 2nd semester of the 2021-2022 academic year. In addition, permission was obtained from the Karapınar District Directorate of National Education and the parents of the students. In the traditional children's games festival, the 3-way final matches of the castled dodgeball game were recorded with a camera.

Data Analysis

The data obtained were analyzed by the criteria determined by two independent researchers working in the field of traditional children's games. Observation scores were uploaded to the SPSS (Ver: 24.0) statistical package program and necessary analysis procedures were performed. To examine the consistency among the observers, the number of observation agreements was checked and the Mann-Whitney U test was performed. By taking the averages of the observers' scores, it was turned into a single score form related to physical activity levels and game performance skills. Data;

frequency, percentage, standard deviation, minimum, and maximum values were expressed and the error level was taken into account as .05. Mann-Whitney U test was used for gender comparison. The relationship between “Moderate-vigorous physical activity” and “Game performance” was examined by correlation analysis.

Results

First of all, the “Moderate-vigorous physical activity” and “Game performance” components of the students who participated in the traditional children's games festival and played castled dodgeball games were examined. In the study, gender was determined as the independent variable and a difference test was conducted to examine the effect level. Correlation analysis was applied to examine the relationship between two different measurement tools.

Table 4
Sofit and Game Performance Scores of the Students

	Subcategories	n	Min	Max	\bar{x}	Sd
SOFIT	Lying down	16	,00	10,00	,625	2,500
	Sitting	16	,00	12,00	,781	2,994
	Standing	16	17,50	50,00	34,187	8,604
	Walking	16	10,00	33,00	25,093	6,242
	Very active	16	4,00	28,50	11,562	6,811
	MVPA %	16	30,00	76,00	50,375	13,336
Game Performance GPAI	Decision-making	16	1,00	9,67	4,353	2,408
	Skill execution	16	1,00	7,00	2,801	1,554
	Support	16	,18	22,67	4,785	6,413
	Game performance	16	,73	10,22	3,979	2,810
	Game involvement	16	4,00	120,50	36,187	37,526

Table 4 shows 5 different types of physical activity (SOFIT) that students can practice. The students showed standing behavior the most. In order to determine the moderate-vigorous physical activity (MVPA) level of the students, the sum of walking and fast activities was calculated by dividing the total time spent in the competition. The MVPA value was determined as 50.37%.

In addition, decision-making, skill, and support indexes are seen among the game performance components. After measuring these reference values, game performance and game participation were calculated. While the students were better at supporting and making decisions, they were insufficient in turning them into a skill.

Table 5
Comparison of Students' MVPA and GPAI Scores by Gender

	Subcategories	Gender	n	Rank average	Rank sum	U	P
SOFIT	MVPA %	Boy	8	8,00	64,00	28,000	,674
		Girl	8	9,00	72,00		
GPAI	Decision-making	Boy	8	9,75	78,00	22,000	,328
		Girl	8	7,25	58,00		

GPAI	Skill execution	Boy	8	9,06	72,50	27,500	,645
		Girl	8	7,94	63,50		
	Support	Boy	8	9,31	74,50	25,500	,505
		Girl	8	7,69	61,50		
	Game performance	Boy	8	9,50	76,00	24,000	,442
		Girl	8	7,50	60,00		
	Game involvement	Boy	8	9,81	78,50	21,500	,279
		Girl	8	7,19	57,50		

(p<.05)

When Table 5 is examined; while no significant difference was found according to the participation in moderate-vigorous physical activities (MVPA) of castled dodgeball game players (p>.05), the highest scores were measured in female students.

Although there was no significant difference (p>.05) in the performance of the students according to their gender, the highest scores were measured in male students. While the physical activity scores of the girl students were higher, the game performance and components of the boy students were higher than the girl students.

Table 6

MVPA and GPAI Correlation Analysis

		MVPA %	Decision-making	Skill execution	Support	Game performance	Game involvement
MVPA %	r	1	,238	,250	,235	,293	,522*
	p		,374	,350	,381	,271	,038
Decision-making	r		1	,582*	,256	,588*	,589*
	p			,018	,338	,017	,016
Skill execution	r			1	,475	,711**	,266
	p				,063	,002	,320
Support	r				1	,921**	,582*
	p					,000	,018
Game performance	r					1	,660**
	p						,005
Game involvement	r						1
	p						

(p<.05*; p<.01**)

Table 6 shows the relationship between moderate-vigorous physical activity (MVPA) and game performance (GPAI). While a significant relationship was found between MVPA and game participation (p<.05), no significant difference was found between other dimensions of GPAI (p>.05).

Skill practice; skills are reflected in the game, as it is largely related to decision-making, participation in the game, and game performance. Support behaviors have affected game performance. In the correlation analysis, the dimensions associated with the GPAI were found to be positively related.

Discussion

Physical Activity

When physical activity is started at an early age, it will be easier to maintain physical activity (Cocca et al., 2020; Fraser et al., 2017; Lu and Montague, 2016). International standards advocate that the duration of moderate-vigorous physical activity (MVPA) should be over 50% of the time allotted for physical activity (Kwon et al., 2020). In this respect, children at the primary school level are expected to do more MVPA physical activity than the 50% reference criterion. In the literature, there are studies related to primary school students that do not confirm this criterion. The MVPA level of Chinese children who participated in the study of Li and Wang (2019) was lower than expected. While Zhou et al., (2022) reached the same results on a similar sample, it was observed that the MVPA percentages of the students of inexperienced and female teachers were low. Bonilla (2016) found the MVPA percentages of Mexican primary school students insufficient. Yon (2018), on the other hand, found the percentage of MVPA (22.07%) to be quite inadequate in the study he conducted with Turkish children. Regarding the lack of physical activity, it was concluded that the physical fitness of the children was poor (Weston et al., 2019). Physical education lesson; an increase in the percentage of MVPA is observed when it is carried out in outdoor games based on a physical activity away from monotony and when it is carried out with activities that require team play and cooperation-oriented activities (Hartatiti et al., 2018; Wang and Zhou, 2022). When the physical education course is conducted by these criteria, students obtain MVPA degrees greater than 50% in swimming (Cardon et al., 2004), football (Harvey et al., 2016), basketball (Iserbyt et al., 2022), and handball units (Dania et al., 2017). In the research, MVPA was found to be greater than 50% for castled dodgeball game, which is one of the traditional children's games based on team and competition. This result emphasized the importance of physical activity practices that require game-based cooperation in parallel with the literature. In addition, it is thought that making use of traditional games can be effective in transferring culture to children (Temel, 2022), as well as increasing the level of physical activity and gaining motor skills (Kwon et al., 2020).

Physical Activity and Gender

In the literature, an important factor predicting moderate-vigorous physical activity (MVPA) was the gender variable. It is understood that MVPA-related boys have a predominantly higher MVPA than girls (Gouveia et al., 2021; Laiño et al., 2019; Lee, 2019; Ramer et al., 2021; Wang and Zhou, 2022; Woodfield et al., 2022). In the study of To et al., (2018), while the MVPA percentage of boys was found to be higher than that of girls during school days, no significant difference was observed in the MVPA value according to the gender on holidays. This result emphasized the positive side of the school for boy students. Smith et al., (2020) made an intervention approach with a special

physical education program for 2 years to increase the level of physical activity. As a result of the research, the MVPA value of girls students increased as well as boys students. In the research of Weaver et al., (2018), the increase in the MVPA value of boy and girl students was attributed to the physical education teacher's approach to encouraging physical activity. The MVPA value of the students who play free games during school between lessons met the expectations. There is no significant difference between boys and girls when students play the games they enjoy with their same gender (Hall-López et al., 2019; Hall-López and Ochoa-Martínez, 2021). These results largely support the research findings. Students who participated in traditional games voluntarily played team games together and experienced the pleasure of success. No significant difference was observed in the MVPA value of the students, as male and female students playing castled dodgeball game should contribute to the game similarly.

Game Performance

It is known that students' game performance improves when model-based lessons are taught. In particular, the sports education model (SEM) and the tactical game model (TGM) are frequently used to increase game performance and participation. With the use of game-based models in physical education lessons by using SEM or TGM, students' decision-making, skill application, support, game performance, and participation in the game become better (Guijarro et al., 2022; Güneş and Yılmaz, 2019).

The presence of experience in the sports education model (SEM) affects game skills. In this direction, participation in 3 education seasons is accepted as a reference value in studies conducted in the literature. Araujo et al., (2017) used SEM for volleyball education for 3 seasons, and the game performance skills of the students increased continuously over time. Farias et al., (2018) examined the game performances of 26 students who were working in basketball, handball, and football units in 3 consecutive SEM seasons, starting from the 5th grade. While there was no significant change in the game performance in the first season (basketball), an increase was observed in the game performance components of the students in the second (handball) and third (football) seasons. The greatest improvement was measured during the handball season. These findings confirmed the result that game skills increase depending on time and experience. Again, Saraç-Oğuzhan (2019) examined the experiences of secondary school students who took the same role during 3 SEM seasons. The seasons are 16 weeks long and mini volleyball, football, and basketball units are conducted respectively. As a result of the study, the knowledge, skills, and attitudes of the students who took the same role for a long time increased. The most important result of the research is that skills increase with experience. Based on the literature, it has confirmed the conclusion that experience improves game performance.

The use of the tactical game approach increased the level of skill practice, especially improved decision-making skills. As in the sports education model (SEM), improvement is significant in students participating in long-term activities. Arias-Estero et al., (2020) examined the playing skills of students who played floorball in the 4th-grade physical education class for a semester. Evaluations were made after the first lesson, after the 8th lesson, and after the 14th lesson. Tactical awareness studies were conducted with the students with the approach of “Teaching Games for Understand (TGfU)”. Compared to the first assessment, students' decision-making and game performance components were better in the 2nd and 3rd measurements. Tactic-based studies for longer than 8 weeks increase the game performance of the students. Ridiensyah (2016) also examined the effect of playing 3v3 basketball on 7th-grade students and social skills by using the TGfU model in physical education classes. As a result of the research, students' social skills and basketball-playing skills increased significantly. In addition to these, hybrid approaches in which models such as SEM and TGfU are used together are effective in developing skills. Minhat et al., (2019) used the hybrid approach in which SEM and TGfU models are used together for the 13-year-old group. As a result of the study, significant improvements were recorded in the students' service, forehand, lob smash and lob drop skills. The combined use of these mixed models provides important contributions for students with low skill levels. Araujo et al., (2016) taught volleyball for 25 lesson hours using the hybrid model in their study. As a result of the study, the game performance of the students improved significantly.

Physical fitness is effective in the progress of game performance components. In the study of Aprianti (2020), the performance of students who took tactical-based physical education lessons increased according to body mass type. With the help of the direct instruction model for obese students, physical fitness and performance components develop at a better level. Tactical approaches were effective in the development of students with normal body weights. In addition to body type, skill level significantly predicts game performance. It has been found that low-skilled students develop better in an appropriate work environment. Araujo et al. (2016) conducted a study on volleyball teaching using the hybrid model and observed that the volleyball game skills of students with severely low skill levels improved. Mesquita et al., (2012) also showed that low-skilled students' football playing skills improved. Lopes et al. (2016), on the other hand, examined the decision-making skills of 80 novice players aged 13, categorized according to their skills, in serving, receiving the serve, and finger passing skills in volleyball. As a result of the study, it was determined that the students with good technical levels had a better level of serving, finger-passing, and decision-making skills in volleyball. When students are given the opportunity, there is an improvement in their game skills. The fact that experience turns into a skill should not be ignored (Pastor-Vicedo et al., 2020; Pizarro et al., 2017).

In the studies conducted in the literature, it was observed that decision-making, skill application, and support behaviors, which are among the game performance components, were measured at ≤ 1 point index level (Barquero-Ruiz et al., 2021; Chatzopoulos et al., 2006; Fadilah and Wibowo, 2018; Puente-Maxera et al., 2020). In these studies, the effects of defense-offensive based (handball, football, basketball) sports branches were examined. When defensive-offensive sports branches are applied as game-based, students' decision-making, skill application, and support behaviors develop (Gutiérrez and García-López, 2012). In our research, better results were obtained for the castled dodgeball game, which is among the traditional games, compared to the literature. Scores were obtained for decision-making ($\bar{x}=4.35$), supporting ($\bar{x}=4.78$) and game performance ($\bar{x}=3.97$). These scores are considered quite well. Good results were obtained for skill execution ($\bar{x}=2.80$). The use of traditional games in physical education classes can be used as a factor that increases the performance of students. In our study, the game involvement index ($\bar{x}=36.18$) was measured at a good level. Excluding skill and decision-making indices in game-based applications (GBA), the game involvement index has also yielded very good results in other studies (Barquero-Ruiz et al., 2021; Evangelio et al., 2019; Morales-Belando et al., 2018). The GBA will continue to maintain its role as an important promoter of physical education classes.

Game Performance and Gender

In the literature, it is seen that boy students come to the fore a little more in the studies on game performance. Puente-Maxera et al., (2020) examined the effects of the 12-week course period on the game performance and game knowledge of Spanish 2nd-grade students in the game of handball. As a result of the study, boys made more progress than girls in-game knowledge, decision-making, and game performance. Miller et al., (2019) found a positive relationship between object control and game performance of 9-12 age group children, and it was determined that boys were better at object control. Cohen et al., (2014) determined that at the primary school level, male students have good object control, and female students have good displacement skills. In the study of Mesquita et al. (2012), it was determined that low-skilled girl students showed significant improvement in skill application and decision-making components after 22 lessons of football training. With the effect of learning, girl students have adapted to new games. The motor development of boy and girl students can be affected according to the characteristics of the class in which they are educated. In this direction, Pritchard et al., (2014) evaluated the game performance of 3 classes consisting of girls, boys, and mixed classes at the secondary school level. Students received 18 days of 3v3 basketball training. The girls in the single-gender class exhibited more game involvement than the girl students in the mixed class. It has been observed that boys have better game performance than girls. When a suitable course environment is created for female students, an improvement is observed in the game performance components. In the study of Araujo et al., (2016), boy and girl students receiving

volleyball training according to the hybrid model showed similar motor skill development. In our research results, no significant difference was observed in-game performance components by gender. Castled dodgeball is game-based and it is thought that the students are at a similar performance level since they have equal representation rights (4 boys - 4 girls) according to gender.

The Relationship between Physical Activity and Game Performance

Fundamental movement skill (FMS) proficiency is positively correlated with physical activity and fitness levels. When physical education teachers make use of developmentally appropriate FMS learning experiences while preparing course content, students' FMS proficiency increases significantly (Morgan et al., 2002). As the physical activity level of the student's increases, their motor skills become more effective (Diaz et al., 2020). Gouveia et al. (2019) found that students spent longer time in moderate-to-vigorous physical activity (MVPA) and this was related to the game performance components. Researching the relationship between physical activity and performance in low economic income communities, Cohen et al., (2014) concluded that the time spent by the students in MVPA was sufficient and those movements requiring object control were positively related to displacement. Iserbyt et al., (2022), who investigated the relationship between MVPA and game performance according to skill levels, observed that students with high skills spent more time in MVPA. Skill level has played an important role in maintaining physical activity effectively. In addition to skill, knowing the rules of the game is an important variable in the sustainability of the physical activity. Pritchard et al., (2019) investigating the relationship between badminton content knowledge, MVPA, and game performance, concluded far above the MVPA reference value (50%). These studies in the literature support the findings of the study. The time spent by the students playing the castled dodgeball game in MVPA was determined as 50.37% and good results were obtained in the game performance components. The relationship between decision-making, skill execution, support behaviors, and physical activity level was not statistically significant. However, a positive relationship was observed between involvement in the game and physical activity. Depending on the level of involvement in the game, it was predicted that the skill scores of the students were measured high. Finally, findings that physical activities performed through play develop basic movement skills come to the fore (Fadilah and Wibowo, 2018).

Conclusion

As a result of the research; it was concluded that primary school students who participated in the traditional children's games festival and played castled dodgeball games had good moderate-to-

vigorous physical activity (MVPA) levels and sufficient game skills. There was a significant relationship between high MVPA value and participation in the game.

Recommendations

Based on the results of the research, it can be suggested to use the castle dodgeball game, one of the traditional games, in physical education classes to improve the tactical awareness and motor skills of the students.

Recommendations for Further Research

Comprehensive research can be done for different grade levels participating in traditional children's games. It can be examined in games such as tombik and handkerchief snatch, which are included in children's games.

Ethical Approval

Ethics evaluation committee: Niğde Ömer Halisdemir University Ethics Committee

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Conflict Statement

There was no statement of conflict between the authors regarding the research.

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