The Influence of Traditional Games and Learning Motivation to Improve Physical Fitness Learning Outcome

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Abstract:
This study aims to determine the differences and effects of traditional games and motivation on physical fitness learning outcomes, in students with high and low motivation. The study used a quasi-experiment designed based on treatment by level 2x2. The comparison of the study conducted at SD 1 Temukus involved students in grades 4, 5 and 6 who were randomly selected from a population of 76 students. The results of this study indicate that: (1) there are learning outcomes between students who follow the traditional fort game model which are better than those who follow the traditional hadang game model (F = 12.570; p-value < 0.05); (2) the learning outcomes of students who follow the traditional fort game model are better than those who follow the traditional hadang game model with high learning motivation (p-value < 0.05); (3) the learning outcomes of students who follow the traditional fort game model are lower than those who follow the traditional hadang game model with low learning motivation (p-value < 0.05). The conclusion of this study is that the traditional fort game is an alternative game model to improve physical fitness learning outcomes by considering students' learning motivation.

Keywords: traditional games, motivation, physical fitness, learning outcomes
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1. Introduction efforts to improve physical fitness learning outcomes

Education is the main key in efforts to improve a person's life in a better direction. Education can be said to be an action that is carried out consciously and has been planned in such a way, in order to create an atmosphere and active learning process to develop potential. Ki Hajar Dewantara emphasized that education is a process of guiding children to grow based on their natural strengths[1.] The natural nature of elementary school age children is to play. Playing can develop motor and cognitive skills, because it is directly related to the real world so you feel like you are part of that world[2]. Physical Education, Sports and Health (PJOK) is a part of education that is tasked with facilitating learning development in the form of attitudes, knowledge and skills through physical activity, playing and exercising systematically, habituation to healthy lifestyles and internalization of values.

The above is certainly very appropriate to Indonesia as a country consisting of various cultures and customs, including traditional games. Traditional games are games inherited from ancestors which contain many elements of physical activity to train motor skills such as running, jumping and many other physical activities which are of course accompanied by certain agreed rules[3]. Apart from the physical elements, there are elements of togetherness, mutual cooperation, socialization and communication to organize strategies or tactics which of course have a very positive impact on children's learning motivation.

Cendana, H., & Suryana,[4] stated that playing is an activity that children do all day long because for children, playing is life, and life is playing. All that is on the minds of young children is playing. They cannot differentiate between playing, studying and working. So wherever and whenever, they will definitely continue playing. Meanwhile, according to Piaget in (Putri & Suryana[5]) "playing is an activity that is carried out repeatedly and creates pleasure/satisfaction for a person."

Nurhayati et al.,[6] stated that there are six characteristics of children's play activities that stimulators must understand, namely: (1) play emerges from within the child; (2) playing must be free from binding rules and the activity must be enjoyed; (3) playing is an activity or actual activity; (4) play should be focused on process rather than results; (5) play must be dominated by the player; and (6) playing must involve an active role from the player. The function of play for children according to Nurani, Y., & Hartat[7] in children's learning, there are various types that have an impact on their development, so that the function of play can be identified as: 1. Can strengthen and develop muscles and coordination through movement, train fine motor skills, motor skills. Roughness and balance, because when playing physically children also learn to understand how their body works. 2. Can develop emotional skills, trust in others, independence, and courage to take initiative. This is because when playing, children often imitate other people, animals or other characters. Children also learn to see other people's perspectives (empathy). 3. Can develop their intellectual abilities, because through playing children often explore everything in their surrounding environment as a manifestation of their curiosity. 4. Can develop independence and be them. This is because through play, children always ask questions, examine the environment, learn to make decisions and practice social roles.

The presence of traditional games has been neglected and is starting to sink with the rise of children's games which are technologically advanced and instantaneous and tend to foster a consumerist spirit in children[8]. Natural learning from this traditional game is the emergence of energy to re-humanize the entire learning process; because children learn directly to play the game themselves so they feel the energy that influences all cells in the body system to stimulate rich sensorimotor processes. In this regard, learning also lays the foundation for practicing social skills, because we are involved in group dynamics which require natural interaction to carry out the learning process with other people[9].

Playing for children is an exciting thing, especially with traditional games which have many benefits for children. The benefits of traditional games according to Widodo[10], include: the benefits obtained from traditional games include: (1) children become more creative, (2) can be used as therapy for children, (3) develop children's intellectual intelligence, (4) developing children's interpersonal emotional intelligence, (5) developing children's logical intelligence, (6) developing children's kinesthetic intelligence, (7) developing children's natural intelligence, (8) developing children's spatial intelligence, (9) developing children's musical intelligence, and (10) develop children's spiritual intelligence.

Playing activities in traditional games also have a big influence on a person's mental development[11], apart from that it can also be a means for physical development such as strengthening muscles, increasing speed, improving reaction and coordination, and can burn calories so that it can prevent children from the risk of obesity[12] .

Regarding the nature of the times, in the very dynamic development of technology it is certainly very useful and able to provide convenience in everyday life. One of the things we feel most is the benefits smart phone. Everything is just within your grasp. This greatly reduces communication and social interaction with people around you because you are too busy smart phone each[13]. Apart from that, it can cause laziness to carry out movement activities. The movements in question are activities in the form of light exercise such as walking, running and jumping. From the results of interviews with students, they do less than 30 minutes of physical activity a day. They are more fun sitting in front of their devices. Basic Health Research in 2018 showed that the proportion of obesity experienced by children aged 5-12 years in Indonesia was 23.6%, including 13.0% classified as obese and 10.6% classified as very obese. The proportion of underweight is 6.2% of which 5.0% is classified as underweight and 1.2% is classified as very underweight. This is of course caused by the child's lack of movement. Children tend to think that movement activities are tiring, boring and cause pain. Thus, it certainly affects the child's physical fitness level.

Physical fitness can be interpreted as the level of an individual's ability to carry out daily work without causing significant fatigue so that they still have the energy to carry out other activities. According to Bafirman, B., & Wahyuri[14], the work ability of someone who has a high level of fitness is not the same as someone who has a low level of fitness. More simply, physical fitness is the level of a person's ability to carry out various movement activities effectively and efficiently without experiencing excessive fatigue so that they can avoid all risks of disease[15]. Seeing the importance of a person's physical fitness in carrying out their life, awareness of physical activity should be instilled from an early age with the hope that it will become a habituation. By changing the mindset that physical activity is

tiring, but on the contrary that physical activity through traditional games is fun.

Based on the results of initial observations, there was a decrease in learning motivation and student movement activity which had an effect on the physical fitness level of children at SD Negeri 1 Temukus. This can be seen from the weakness of good communication skills, cooperation, mutual respect, and lack of self-confidence when dealing with the general public. Apart from that, when taking PJOK lessons, students are less active in doing physical activities because they get tired quickly so that their physical fitness learning outcomes are particularly low. Differences in learning motivation among students also influence the learning process. Apart from that, the lack of variation in choosing learning models that involve students in the PJOK learning process makes learning less enjoyable and even boring so that children's motivation to participate in learning is low.

Motivation is defined as: (1) the urge that arises in a person, consciously or unconsciously, to carry out an action with a certain goal; (2) efforts that can cause certain groups to be moved to do something about the goals they want to achieve[16]. Motivation is a basic drive that is abstract in nature and comes from every individual human or animal, where the activity is based on the urge to achieve the final goal that has been prepared/considered beforehand16.

Learning motivation is internal and external encouragement for students who are in the learning process to make changes in behavior, generally with several indicators or supporting elements. Indicators of learning motivation according to Asrori in Sholachudin[17], can be grouped as having high passion, full of enthusiasm, having high curiosity or curiosity, being able to do things when the teacher asks students to do something, having self-confidence, having high concentration power, difficulties are considered challenges that must be faced, and have high patience and fighting power

Nowadays, athletics have become trend, and people's lifestyles. Apart from filling free time, exercise is an effort to maintain a person's physical fitness. The definition of physical fitness from several experts is as follows. According to Lengkana, & Muhtar [18], physical fitness is a general state of health and well-being and, more specifically, the ability to carry out aspects of sports, work and daily activities. Physical fitness is generally achieved through proper nutrition, moderate-vigorous physical exercise, physical activity, and adequate rest.

There are five factors that play a role in a person's level of physical fitness, namely: 1) Food and Nutrition; according to Ardiyanto[19], the condition and factors of school children's food and nutrition can determine educational success. School children are a nutritionally vulnerable group. 2) Rest; Excessive physical activity can cause fatigue. Fatigue is an indicator that the human body has limited function. Rest is needed to be able to restore energy when fatigue occurs so that rest needs to be done to restore energy when fatigue occurs so that you can continue carrying out the next activity[20]. 3) Age21, states that the level of physical fitness is influenced by a certain age level. 4) Healthy Living; Ardiyanto[21] , stated that one way of improving physical fitness is implementing a clean and healthy lifestyle, namely doing physical activity. By doing appropriate and regular physical activity, physical fitness will be formed. 5) Sports; the most effective way to improve physical fitness is exercise. According to Oktaviani, & Wibowo[22], physical activity and physical fitness have decreased while excess body weight has increased. The low level of student fitness in educational units in Indonesia can be used as an illustration that the quality of physical

education in Indonesia is still considered low. Programmed training has several principles, namely 1) Systematic, meaning it is carried out sequentially or sequentially. Exercises are carried out starting from warm-up, core, then cool-down. 2) Sustainable (Continue), has the meaning of being carried out continuously and for a regular duration of time. 3) Increased Burden (Overload), meaning that the exercises carried out must include additional load in each exercise, from light to heavier exercises.

Pradana[24] et al., stated that there are four elements of physical fitness, namely cardiorespiratory endurance, increased ability of the cardiovascular system, the heart works more efficiently and effectively pumps blood to all the body's organs in accordance with the needs of the body's organs, especially the need for resources. Energy (oxygen and glucose), muscle strength and endurance, the ability of the respiratory organ system to meet oxygen needs, flexibility, increased muscle contraction ability, muscles contract more strongly for longer periods. As well as, body composition, increasing the ability of the nervous system so that it has reaction speed and movement speed and so on. The ability of the body's organs to function more efficiently and effectively is the result of physical exercise or sports activities which have resulted in physiological adaptation (sustainable adaptation) to the body's organs.

Pasaribu[23], explains that physical fitness which is related to skills has several components, namely heart and lung endurance / Endurance, muscle strength / Strength, flexibility / flexibility, speed / speed, explosive power / power, agility / agility, balance / balance, accuracy / accuracy, and coordination / coordination. Meanwhile, this is how to improve physical fitness.

There are three ways to improve physical fitness, namely, 1) eating; to be able to maintain a decent life, every human being needs sufficient food, both quality and quantity, that is, meeting the requirements for a balanced healthy diet, sufficient energy and nutrition. Daily energy requirements for workers are obtained from food sources of energy with a proportion of 60% carbohydrates, 25% fat and 15%26. Rest; the human body is composed of organs, tissues and cells that have limited working capacity. A person cannot work continuously all day without stopping. Fatigue is an indicator of limited human function. Rest is needed so that the body has the opportunity to recover so that it can carry out daily work comfortably[24]. 3) Sports; Exercising is the most effective and safe alternative for obtaining physical fitness, exercise has multiple benefits including physical benefits increasing fitness components, psychological benefits of being more resistant to stress and social benefits that can increase self-confidence and a means of interacting[25]. Exercise done regularly and systematically can increase total lung capacity and heart volume. The effect of training will be realized if the training program is prepared systematically[26], in detail so that it can meet demands and achieve the desired targets. It is important to realize that well-directed exercise will improve your abilities and overall physical fitness

On this occasion, researchers offer the use of a method with traditional games, which is expected to improve children's physical fitness learning. With traditional games, children will be physically active in fun games, with feelings of joy and happiness so that feelings of tiredness when doing physical activities as usual can be overcome. The recommended traditional games are fortification and hadang. These two traditional games involve a lot of physical activity that can train speed, strength and agility. Hadang is one of the traditional ones that is contested in international scale events, The Association For International Sport

for All (TAFISA)[27]. These two games can also be played by men or women regardless of gender.

Starting from the description above, researchers see that the learning process for physical fitness material is less effective, it is thought that the main cause is due to boring and less varied learning. From the problems described above, researchers suspect that there is a connection between traditional games and learning motivation on student learning outcomes in physical fitness. Because of this, researchers were encouraged to conduct research with the title "The Influence of Traditional Games and Learning Motivation to Improve Physical Fitness Learning Outcomes".

This research aims to determine the effect of implementing the traditional games of fortification and hadang to increase learning motivation and physical fitness learning outcomes at SD 1 Temukus. Several studies are needed that can support the results of this research so that it can be empirically valid research. The following is relevant research; 1) Hadangan Games to Improve Gross Motor Skills in Elementary School [29] This research aims to determine the impact of implementing PJOK learning in the traditional Hadangan game on improving the gross motor skills of elementary school children. This research is experimental research with a one group pretest posttest design. The research results showed that the traditional game of hadangan had a significant influence on improving children's gross motor skills (Sig. 0.000). It can be concluded that traditional sports activities have excellent potential in terms of improving children's gross motor skills. 2) The effect of improving physical fitness through traditional games in elementary schools[30]. This research is to determine the increase in physical fitness learning through traditional games. This research uses an experimental method with a pretest-posttest control group design. The research population was class V students in Muaragembong District, Bekasi City. The results of data analysis show that there is a significant difference between the experimental group and the control group in the posttest, with a value of $t = -4.76$ and $p = 0.000$ ($p < 0.05$). This means that the average physical fitness level of the experimental group was higher than the control group after being treated with traditional games. Conclusion: From the research results it can be concluded that learning PJOK using traditional game methods can improve physical fitness learning outcomes. 3) The influence of traditional games on improving the physical fitness of class VIII students at SMP Negeri 51 Palembang[31]. This research uses a qualitative descriptive method. From the results of this research it can be concluded that there is an increase in physical fitness through traditional games in class VII male students at SMP Negeri 51 Palembang. 4) Analysis of student motivation towards learning the traditional game of Bentengan34. This research uses a quantitative descriptive method, meaning that research is used to find out the actual situation based on the results of a questionnaire with valid instruments. The results of this research show that student motivation towards learning the traditional game of fortification in class V students at SD Negeri Gempolsari 01 Pati Regency as a whole is in a very high category. Based on several relevant research results above, it can be concluded that the implementation of traditional games of fortification and hadang can increase children's learning motivation and physical fitnes.

2. The Method

The population, the population in this study was students at SD Negeri 1 Temukus aged 10-12 years according to the following table.

Table data on students aged 10-12 years at SD Negeri 1 Temukus

No	Class	Son	Daughter	Amount
1.	IV	5 People	11 People	16 People
2.	V	14 People	12 People	30 People
3.	VI	17 People	13 People	26 People
TOTAL				76 People

(Source: Temukus 1 Elementary School student data in 2023)

This type of research is an experiment using a factorial design treatment by level 2 x 2 35. By using 4 treatments, researchers can compare the effects of various levels or types of treatment in identifying which treatment is most effective or has certain desired impacts[32].

Data collecting from the student learning motivation that got from data used a learning motivation questionnaire which has been tested for validity and reliability. The scores obtained are in the form of data on an interval scale. This data was collected through skills tests carried out in accordance with the Indonesian physical fitness test (TKJI) norms for ages 10-12 years, namely; 1) 40 meter running test to measure speed calculated in minutes and seconds; 2) Hanging bent elbow test to measure muscle strength and shoulder muscle endurance which is calculated in minutes and seconds; 3) Sitting lying test/ sit up 30 seconds to measure muscle strength and endurance of the abdominal muscles, which is calculated by the number of repetitions of correct movements; 4) Upright jump test to measure the explosive power of the leg muscles using distance measurements in centimeters; 5) 600 meter running test to measure endurance in minutes and seconds

Data analysis in this study, researchers used a two-way ANOVA (Analysis of Variance) test treatment by level 2x2. The classification will be divided into two levels, namely high learning motivation and low learning motivation.

Hypothesis testing using a two-way analysis of variance (ANOVA) test is designed to investigate the influence of two variables. The research hypothesis is tested for truth based on data obtained from the sample[33]. This hypothesis test will use the two-way Anova test using assistance SPSS 25.0 for Windows. The hypothesis is accepted if the two-way ANOVA test value has a significance value smaller than $\alpha = 0.05$, whereas if the significance value is greater than $\alpha = 0.05$, then the hypothesis is rejected. If there are differences, the test will continue Scheffe to find out which group is significantly better. The hypothesis to be tested in this research is as follows. Hypothesis testing consists of 1) Hypothesis Testing the Influence of Main Factors. This hypothesis test is to determine the differences in physical fitness learning outcomes between students who follow the traditional fortification game model and students who follow the hadang game model. 2) Interaction Influence Hypothesis Test, this hypothesis test is to determine the interaction effect between the game model and learning motivation on students' floor exercise skills learning outcomes in physical fitness. 3) Advanced Hypothesis Testing, this test is carried out if the results of testing the interaction hypothesis show acceptance of the research hypothesis (or rejection of H0).

3. Result and Discussion

Test data shows that the results of students' physical fitness assessments were measured through several parameters such as 60m running, hanging body lifts, 30 sit ups, upright jumps and 600m running. These results are then grouped based on the total score of the various components into the categories “Very Good”, “Good”, "Medium", "Bad", "Poor", and. The average student fitness scores are presented in the following table:

Table 1 The Student Fitness Scores of Bentengan

Name	Run 60m	Hanging Body Lift	Sit Up 30	Upright Jump	Run 600m	Total Value	Category
Student 1	5	5	4	4	5	23	Very Good
Student 1	5	4	4	4	4	21	Good
Student 1	5	5	5	5	5	25	Very Good
Student 1	5	5	4	5	5	24	Very Good
Student 1	5	4	4	4	4	21	Good
Student 1	*5*	*5*	*4*	*4*	*4*	22	Very Good
Student 1	4	4	3	4	5	20	Good
Student 1	5	5	3	4	5	22	Very Good
Student 1	5	5	5	5	5	25	Very Good
Student 1	3	3	3	3	4	16	Medium
Student 1	5	4	4	4	5	22	Very Good
Student 1	5	4	4	4	5	22	Very Good
Student 1	4	5	4	3	4	20	Good
Student 1	4	4	4	4	5	21	Good
Student 1	4	5	4	4	5	22	Very Good
Student 1	5	5	5	4	4	23	Very Good
Student 1	5	5	4	4	4	22	Good
Student 1	5	5	5	4	5	24	Very Good
Student 1	4	4	4	3	4	19	Good
Student 1	3	4	4	4	4	19	Good
Student 1	5	5	5	4	5	24	Very Good
Student 1	4	3	4	3	4	18	Good
Student 1	5	5	4	4	5	23	Very Good
Student 1	4	4	4	4	4	20	Good
Student 1	5	5	4	4	5	23	Very Good
Student 1	5	5	4	4	4	22	Very Good
Student 1	4	4	4	4	5	21	Good
Student 1	5	5	5	4	5	24	Very Good
Student 1	5	5	4	4	5	23	Very Good
Student 1	5	4	4	4	5	22	Very Good
Student 1	5	4	4	5	4	22	Very Good
Student 1	5	5	5	4	5	24	Very Good
Student 1	5	5	4	4	5	23	Very Good
Student 1	5	5	5	4	4	23	Very Good
Student 1	5	5	5	4	5	24	Very Good
Student 1	5	5	5	4	5	24	Very Good
Student 1	5	5	4	4	5	23	Very Good
Student 1	5	4	5	4	5	23	Very Good
Student 1	5	5	4	4	4	22	Very Good

The total scores are categorized into general performance levels that are Very Good, Good, and Medium. The majority of students in the dataset achieved scores that fall into the Very

Good category, reflecting a high level of fitness across the board. Specifically, the highest possible total score observed is 25, which signifies optimal performance in all activities. Students who consistently obtained top scores in most or all activities were classified as having Very Good fitness levels. This category is well-represented, with several students achieving perfect scores of 25, indicating peak physical condition. A significant number of students fall into the Good category, with total scores generally ranging from 20 to 23. These students demonstrated solid fitness skills, with minor variations in performance across different activities. A smaller portion of the data includes students with total scores around 16 to 19, categorized as Medium fitness. These scores suggest areas for improvement in one or more physical activities to reach higher fitness levels.

Table 2 The Student Fitness Scores of Hadang

Name	Run 60m	Hanging Body Lift	Sit Up 30	Upright Jump	Run 600m	Total Value	Category
Student 1	4	3	4	4	5	20	Good
Student 1	4	5	5	3	5	22	Very Good
Student 1	4	5	3	3	5	20	Good
Student 1	4	5	3	3	4	19	Good
Student 1	4	4	4	4	5	21	Good
Student 1	*5*	*5*	*5*	*5*	*5*	25	Very Good
Student 1	5	5	5	3	5	23	Very Good
Student 1	4	3	3	3	5	18	Good
Student 1	5	5	4	4	5	23	Very Good
Student 1	5	4	4	5	5	23	Very Good
Student 1	4	2	3	5	4	18	Good
Student 1	5	5	5	3	5	23	Very Good
Student 1	5	2	4	4	4	19	Good
Student 1	5	3	4	3	5	20	Good
Student 1	5	3	4	5	5	22	Very Good
Student 1	5	2	3	5	5	20	Good
Student 1	3	5	4	3	5	20	Good
Student 1	5	5	4	3	4	21	Good
Student 1	4	3	5	4	5	21	Good
Student 1	4	3	4	4	4	19	Good
Student 1	4	3	5	4	4	20	Good
Student 1	5	3	4	4	5	21	Good
Student 1	5	5	4	4	2	20	Good
Student 1	4	3	4	4	3	18	Good
Student 1	5	5	4	2	4	20	Good
Student 1	5	5	5	4	5	24	Very Good
Student 1	5	5	3	3	3	19	Good
Student 1	5	4	4	4	5	22	Very Good
Student 1	5	5	5	3	4	22	Very Good
Student 1	4	3	4	4	4	19	Good
Student 1	3	2	3	4	4	16	Medium
Student 1	5	2	3	4	5	19	Good
Student 1	4	5	4	3	4	20	Good
Student 1	5	2	5	4	5	21	Good
Student 1	5	3	5	4	5	22	Very Good
Student 1	3	3	3	4	3	16	Medium

Student 1	5	5	4	2	4	20	Good
Student 1	5	5	5	2	5	22	Very Good
Student 1	5	5	4	4	5	23	Very Good
Student 1	4	4	3	3	5	19	Good

The majority of students in the dataset achieved scores that fall into the Very Good category, reflecting a high level of fitness across the board. Specifically, the highest possible total score observed is 23, which signifies optimal performance in all activities. Students who consistently obtained top scores in most or all activities were classified as having Very Good fitness levels. This category is well-represented, with several students achieving perfect scores of 23, indicating peak physical condition. A significant number of students fall into the Good category, with total scores generally ranging from 19 to 20. These students demonstrated solid fitness skills, with minor variations in performance across different activities. A smaller portion of the data includes students with total scores around 16, categorized as Medium fitness. These scores suggest areas for improvement in one or more physical activities to reach higher fitness levels.

The data shows the frequency distribution of 76 class participants based on attendance. There are three groups:

Table Respondent Descriptive Test

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	4th grade	22	28.9	28.9	28.9
	5th grade	28	36.8	36.8	65.8
	6th grade	26	34.2	34.2	100.0
	Total	76	100.0	100.0	

Information:
1. First group (22 participants, 28.9%)
2. Second group (28 participants, 36.8%)
3. Third group (26 participants, 34.2%)

The statistical data above consists of three variables, namely physical fitness learning outcomes, fortification games, and class, with a valid sample of 76 data for each variable. The average value of physical fitness learning outcomes is 21.2763, with a median (middle value) of 22.0000. This shows that the data distribution tends to be centered around the value 22. The standard deviation value of 2.12037 shows the variation or spread of learning outcome values from the average. The value range for the physical fitness learning outcomes is 9.00, with a minimum value of 16.00 and a maximum value of 25.00. The total learning outcome value is 1617.00. The average for a game of fortification is 1.5000, with the same

median being 1.5000. This shows that most of the data has values equal to or close to the average. A standard deviation of .50332 indicates that the fortress game data is relatively narrowly spread around the mean. The value range for the fort game is the total value for the fort game is 114.00. Overall, these data provide a clear picture of the distribution and variation of physical fitness learning outcomes, fortification games, and classes within the analyzed sample

Instrument Test Results

Validity Test

The instrument is declared valid if the R count > R table (0.312) and is significant (< 0.05). Some participants had invalid data. Based on the test results table above, it shows that a number of respondents in the fortification class totaling 32 respondents had valid data, namely the calculated R value > R table, and the sig value < 0.05. Apart from that, there were respondents whose instruments were invalid, namely Dewa Gede Ari Sedana Putra Atmaja - R Count: -0.170, Sig: 0.307. Kadek Sapta Gunadi - R Count: 0.291, Sig: 0.076. Ketut Era Ayu Anggreni - R Count: 0.178, Sig: 0.284. Komang Indira Oktariani - R Count: 0.259, Sig: 0.117. Putu Sabda Damar Sasangka - R Count: 0.233, Sig: 0.159.

This validity test table displays the results of validity testing of various names in the Hadangan class. This validity test is measured using two main criteria, namely R Count (correlation coefficient) and themselves (significance). Most participants have grades R Count which is significant with a significance level of $p < 0.05$ or $p < 0.01$. This is indicated by the presence of one or two stars next to the value R Count. Participants with grades R Count The lowest was Wahyu, with a value of 0.251 and a p-value of 0.128, indicating that the results were not significant. Apart from that, there were 4 respondents who had a value > 0.05, namely Wahyu 0.128, Putu Mahandika Wiradinatha 0.063, I Komang Satya Prema Ananda 0.60, and I Putu Krisna Aditya 0.083, so it was stated that this value was not significant or invalid.

Reliability Test

Cronbach's Alpha value of 0.892 indicates very good reliability. Reliability testing is a process to determine how consistent a measuring instrument is in producing reliable data. In this context, the measuring instrument used has 37 items.

Table Fortification Class Reliability Test

Reliability Statistics

Cronbach's Alpha	N of Items
.892	37

Based on the table above, the Cronbach's Alpha value is 0.892. This shows that the measuring instrument used has a very good level of internal consistency. The criterion for a reliability value is that above 0.7 is considered acceptable, while a value above 0.8 indicates good reliability. With a Cronbach's Alpha value of 0.892, we can conclude that this Fortification Class measuring instrument is quite reliable and can be used for consistent measurements and shows good reliability.

Table Class Reliability Test

Reliability Statistics	
Cronbach's Alpha	N of Items
.895	37

Based on the table above, it shows Cronbach's Alpha value is 0.892. This shows that the measuring instrument used has a very good level of internal consistency. The criterion for a reliability value is that above 0.7 is considered acceptable, while a value above 0.8 indicates good reliability. With a Cronbach's Alpha value of 0.895, we can conclude that this Fortification Class measuring instrument is quite reliable and can be used for consistent measurements and shows good reliability.

Prerequisite Test

Normality Test

Based on the normality test above, the Kolmogorov-Smirnov statistical value for residual data is 0.104. The degrees of freedom in this test is 76. Sig value. (Significance): The significance value is 0.039. With a significance value of 0.039, which is smaller than 0.05, it shows that the data is not normally distributed at the 5% significance level. Meanwhile, the Shapiro-Wilk test shows that the Shapiro-Wilk statistical value for residual data is 0.973. The degrees of freedom in this test is 76. Sig value. (Significance): is 0.106Shapiro-Wilk: With a significance value of 0.106, which is greater than 0.05, indicating that the data is normally distributed at a significance level of 5%.

Homogeneity Test

Homogeneous data with significance values of 0.781 and 0.933. A value greater than 0.05, it indicates that the data in this study is homogeneous. Based on the data above, it shows that the mean value is 0.493 with a significance level of 0.781, which indicates there is no significant difference in variance based on the mean value between groups (homogeneous). Based on the median it is 0.261 with a significance level of 0.933, again showing no significant difference in variance when using the median. Based on the Median and with df which has a statistic of 0.261 and a significance level of 0.933, based on the average statistical value is 0.470 with a significance level of 0.797, which shows consistent data results

Hypothesis Testing

Analysis of Variance (ANOVA)

There is a significant difference between traditional game groups on physical fitness learning outcomes (sig. 0.001 < 0.05).

Table ANOVA Test

ANOVA

	Sum of Squares	df	Mean Square	F	Say.
Between Groups	48.961	1	48.961	12.570	.001
Within Groups	288.237	74	3.895		
Total	337.197	75			

Interaction Effects

Games and motivation have a significant interaction on physical fitness learning outcomes (F: 927.237, sig. 0.000).

Two Way ANOVA Test Table

Table Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	102.159[a]	5	20.432	6.085	.000
Intercept	33847.009	1	33847.009	10080.438	.000
Games	47.311	1	47.311	14.090	.000
Class	50.342	2	25.171	7.497	.001
* Class game	3.817	2	1.909	.568	.569
Error	235.038	70	3.358		
Total	34741.000	76			
Corrected Total	337.197	75			

a. R Squared = .303 (Adjusted R Squared = .253)
b. Dependent Variable: physical fitness learning outcomes

Hypothesis testing of differences in physical fitness learning outcomes between students who take part in the traditional game of Bentengan and students who take part in the traditional game of Hadang. Students who have low motivation

Hypothesis Test Table of differences in physical fitness learning outcomes between students who take part in traditional games and students who have low motivation

Multiple Comparisons

Dependent Variable: Hasil

Bonferroni

(I) Kelompok	(J) Kelompok	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound

Bentengan	3	-93.385*	2.270	.000	-99.08	-87.68
Hadang	3	-95.077*	2.270	.000	-100.78	-89.38
Motivasi Rendah	1	93.385*	2.270	.000	87.68	99.08
	2	95.077*	2.270	.000	89.38	100.78

*. The mean difference is significant at the 0.05 level.

By using the Bonferroni method to carry out multiple comparisons, the data above shows that the results of the hypothesis test of differences in learning outcomes between students who took part in traditional games and students with low motivation, namely the fortification group and students who had low motivation, showed a Mean Difference of -93,385, and the significance value: 0.000 means value (significant). Then the Hadang group with students who had Low Motivation showed a Mean Difference of -95.077 and a significance value of 0.000, meaning a significant value. The results of this test show that students who have low motivation have significantly lower learning outcomes compared to students who take part in the traditional games Bentengan and Hadang.

Hypothesis testing of differences in physical fitness learning outcomes between students who take part in the traditional game of Bentengan and students who take part in the traditional game of Hadang. Students who have high motivation

Hypothesis Test Table of differences in physical fitness learning outcomes between students who take part in traditional games and students who have high motivation

Multiple Comparisons

Dependent Variable: Hasil

Bonferroni

(I) Kelompok	(J) Kelompok	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Bentengan	3	-125.769*	1.014	.000	-128.31	-123.22
Hadang	3	-127.462*	1.014	.000	-130.01	-124.92
Motivasi Tinggi	1	125.769*	1.014	.000	123.22	128.31
	2	127.462*	1.014	.000	124.92	130.01

*. The mean difference is significant at the 0.05 level.

The results of the analysis of differences in learning outcomes between students show significant differences. In the Bonferroni test, a comparison between the Bentengan group and the group with high motivation produced a mean difference of -125,769 with a significance value of 0.000, meaning P value <0.05, which indicates that students who participated in the Bentengan game had lower learning outcomes compared to students who have high motivation. Likewise, a comparison between the Hadang group and the group with high motivation shows a mean difference of -127.462 with a significance of 0.000, indicating similar learning outcomes. These results confirm that students with high motivation tend to

have better learning outcomes compared to those involved in traditional games such as Bentengan and Hadang. These results indicate that the types of traditional games that students participate in, as well as high levels of motivation, have a very significant influence on learning outcomes, with a dominant contribution from the independent variable.

4. Discussion

Differences in physical fitness learning outcomes between students who take part in the traditional game of Bentengan and students who take part in the traditional game of Hadang

Psychomotor learning outcomes of students who use the fortification game treatment better than students who used the Hadang game treatment. This conclusion is drawn from the results Two Way Anova with SPSS 25 where an F value of 14.090 was obtained with a significance level of .000 < 0.05 in the Hadang game, indicating that this variable had a significant effect on the dependent variable (physical fitness learning outcomes). The second independent variable is strength with an F value of 7.497 and a significance of .001, this variable also has a significant effect on physical fitness learning outcomes. Based on the mean (average) value in the game of fortification is 139.00, in the game of fortification it is 146.0789, it can be concluded that the game of fortification has a stronger influence on physical fitness learning outcomes.

Traditional games are indeed effective in improving student physical fitness learning outcomes. This is proven based on the results of Sholeh[35], a significance value of 0.001 <0.05. Thus the results obtained by Ho are rejected and Ha is accepted. So it can be concluded that there is an influence of the application of traditional games on the physical fitness learning outcomes of the 100 meter sprint at Azzawiyah Tanjung Batu Middle School. Traditional games can be used in teaching sprinting material. Guidelines for implementing traditional games for physical education materials can make it easier for teachers to utilize these games in teaching and learning activities

Azizah39, also concluded that, on the variable of learning motivation, learning application using the traditional game is more effective in increasing student motivation than learning without the traditional game. This is shown by the increase in the average gains score for the experimental class which is higher than the control class with the average gains score for the experimental class reaching 17.25 and the average gains score for the control class reaching 9.95 with a difference of 7.3.

The effect of interaction between traditional games and motivation on physical fitness

There is an interaction between traditional games and learning motivation on physical activity physical fitness learning outcomes. This conclusion is drawn from the results Two Way Anova with SPSS 25 where F: 927.237 was obtained with a significance level of 000<0.05. These results mean that learning motivation influences the physical fitness learning outcomes of students who take part in fortification and hadang games.

Based on the results of this research, it is proven that learning activities implemented using

play or game methods, especially traditional games, are effective in increasing students' learning motivation. This is because playing methods or games can make the learning atmosphere more comfortable and enjoyable. This kind of learning does not cause boredom in students, so they can focus their full attention on the lesson material.

Most review articles and proceedings publications about serious games in health professions education raise questions on their pedagogical methods, assess the evidence of their educational effectiveness, or examine how they are employed in health professions education[36].. The findings of the Morales41 study emphasize that the use of the traditional national games (Larong-Lahi) in the teaching and learning process of pre-service physics students provided the conditions and conceptual ecology for them to undergo conceptual change and achieve conceptual understanding. In the case of their epistemological beliefs, although there was a non-statistically significant comparison of pre and post EBAPS implementation, the minute changes in their epistemic beliefs show that these traditional game (Laro-ng-Lahi) based physics activities may somehow influenced their epistemic beliefs. Large-scale changes in the students' belief systems are expected to surface if the participants undergo a prolonged and sustained use of culture-based learning process.

The differences in physical fitness learning outcomes between students who take part in the traditional game of Bentengan and students who take part in the traditional game of Hadang. Students who have low motivation

Based on the Bonferroni test, the significance value is $p < 0.05$, namely 0.000, which means the value is (significant). Then the Hadang group with students who had Low Motivation showed a Mean Difference of -95.077 and a significance value of 0.000, meaning a significant value. The results of this test show that students who have low motivation have significantly lower learning outcomes compared to students who take part in the traditional games Bentengan and Hadang.

Traditional games are learning that focuses on kinesthetic intelligence which is good for increasing motivation as the arguments of Hsu[37],, as far as a teaching tool is concerned, due to the multiple interaction types it supports, Kinect has the potential to enhance classroom interactions, to increase classroom participation, to improve teachers' ability to present and manipulate multimedia and multimodal materials, and to create opportunities for interaction and discussion. As a learning tool, Kinect has the affordances to create enjoyable, interesting interactions types, to boost student motivation, and to promote learning via its multimedia and multi-sensory capacity. In addition, students can utilize the bodily information gathered by Kinect with software programs to create highly interactive multimedia works. However, the implementation of Kinect in the classroom has technical constraints such as large classroom space, lack of easy-to-use development tools, and long calibration time and pedagogical constraints such as the difficulties in shifting to kinesthetic pedagogical practices and limited understanding of its effect.

The differences in physical fitness learning outcomes between students who take part in the traditional game of Bentengan and students who take part in the traditional game of Hadang. Students who have high motivation

The results of the Bonferroni test analysis show that the comparison between the Hadang

group and the group with high motivation shows a mean difference of -127.462 with a significance of 0.000<0.05, indicating similar learning outcomes. These results confirm that students with high motivation tend to have better learning outcomes compared to those involved in traditional games such as Bentengan and Hadang. These results indicate that the types of traditional games that students participate in, as well as high levels of motivation, have a very significant influence on learning outcomes, with a dominant contribution from the independent variables.

Based on the Mishra, N., & Aithal [38], opinion that students of all ages and standards participate in these activities at all levels. Sports, gaming, art, music, theatre, poetry, student newspaper, and government are examples of extracurricular activities. Participation in all these activities, or just one of them, has been linked to the social and academic curriculum. There are various perspectives on what constitutes an extracurricular activity. Outside-of-institute activities may include dances, team sports, and performing arts, whilst inside-of-institute involvement activities may include within the group and academic groups.

Only one group of pre-service physics students participated in this study, thus, other studies could use the framework to extend the work to all other pre-service science students in the Philippines. Curriculum designers could develop culture-influenced curriculum materials that make use of religious beliefs, practices, and traditions such as celebration of fiesta and the like. They may also incorporate other traditional national games in designing classroom activities. These culture-influenced activities and curricula may be provided in different languages for better results[39].

5. Conclusions

The ANOVA test shows that the fortification game has a more significant influence on physical fitness learning outcomes than the hadang game. Then, the test results of the effect of the interaction between games and motivation show that there is a significant interaction between games and learning motivation on physical fitness learning outcomes. In the test results of differences based on motivation, traditional games and high motivation have a significant influence on physical fitness learning outcomes, with high motivation strengthening this influence. Based on the results of hypothesis testing using two-way Anova, it shows that there is the difference between fortification games has a stronger influence on physical fitness learning outcomes than hadangs. Next there is an interaction learning motivation has a significant effect on physical fitness learning outcomes. Variable proven high category motivation provides a significant impact with a small number of errors. Meanwhile, the variable low motivation has a strong influence on motivational outcomes, indicating the importance of high motivation.

Conclusion

Based on the analysis conducted in this study, several important points can be concluded regarding the learning outcomes of physical fitness of students who participate in traditional fortification and hadang games:

1. The learning outcomes of students' skills who use fortification games are better than

those who use hadang games. This is supported by the results of the Two Way Anava analysis which shows a significant F value and level of significance, with the average value in fortification games (146.0789) higher than hadang games (139.00).

2. There is a significant interaction between the type of traditional game and learning motivation on learning outcomes of physical activity. These results indicate that learning motivation plays an important role in influencing the learning outcomes of students, both those who participate in fortification and hadang games.

3. In students with high motivation, the significance value of p <0.05 is 0.000, meaning the value (significant). These results indicate that the learning outcomes of students who participate in the traditional fortification game model are better than those who participate in the traditional hadang game model with high learning motivation.

4. In students with low motivation, it shows a mean difference of -93.385 with a significance of 0.000<0.05, which shows that the learning outcomes of students who follow the traditional fort game model are lower than students who follow the traditional hadang game model with low learning motivation.

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