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Development of the baseball game learning model through modification of the castle for class v students of SD Inpres Pulisan in 2020

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Abstract
The background of this research comes from the results of observations and observations are the lack of development of PJOK learning. The problem in this research is how to develop the learning of the Kastul game in PJOK for fifth grade students of SD Inpres Pulisan. The purpose of this research is to produce a product for developing the learning of the Kastul game for fifth graders at SD Inpres Pulisan. This research method is development research that refers to the modified Borg & Gall development model, namely: (1) conducting preliminary research and gathering information, including field observations and literature review, (2) developing the form of the initial product (in the form of game activities). kasti), (3) evaluation of the experts using one physical education expert and two learning experts, as well as small-scale trials, using an evaluation sheet which was then analyzed, (4) the first product revision based on the results of expert evaluations and small-scale trials, (5) large-scale trials, (6) revision of the final product, (7) the final result of modification of the castle game learning. The research data are in the form of product quality, suggestions for product improvement, and the results of filling out questionnaires by students. Data was collected using expert evaluation sheets (one physical education expert and one learning expert), trial I (19 students), and trial II (19 students). The data analysis technique used is descriptive percentage to reveal the psychomotor, cognitive, and affective aspects of students after using the product. From the results of the trial, it was obtained that the first trial data were physical education experts 77% (good), learning experts I 77% (good) and learning experts II 86.6% (good), cognitive 80.5% (good), affective 71 (good), psychomotor 75% (good) and pulse rate 48% (good enough). The second trial is physical education experts 92% (very good), learning experts I 93% (very good), learning experts II 96% (very good), cognitive 84% (good), affective 84% (good), psychomotor 82% (good) and a pulse rate of 50% (good enough). From the existing data, it can be concluded that the development of physical education learning through this kastul game can be used in the physical education learning process for the fifth grade students of SD Inpres Pulisan.

Keywords: development, learning, castle games

Introduction

Physical education is an educational effort by using large muscle activity so that the ongoing educational process is not hampered by health problems and body growth. As an integral part of the overall educational process, physical education is an effort that aims to develop organic, intellectual, and social neuromascules (Adang Suherman, 2000) [1].

National Education Goals in Law no. 20 of 2003, namely developing capabilities and shaping the character and civilization of a dignified nation in the context of educating the nation's life, aiming at developing the potential of students to become human beings who believe and fear God Almighty, have noble character, are healthy, knowledgeable, capable, creative, independent, and become a democratic and responsible citizen.

To support this goal, a curriculum that is tailored to the needs of students is prepared. One of the subjects in the current curriculum is Physical Education, Sport and Health, which is a form of movement education for the quality of human life.

Physical education in elementary schools is not only educating through traditional activities, but the learning process is used as a medium to solve motion problems. Good physical education is not just to increase physical activity but must be able to increase children's knowledge of the principles of motion so that children are able to understand how a skill is learned to a higher level. Thus, the whole movement can be more meaningful.

The purpose of providing an educational nuance in the baseball game is that physical education teachers in schools provide education through physical activities that promote sportsmanship, honesty, cooperation and other educational aspects in learning the baseball game. In physical education, what is meant is that the teacher tries to develop cognitive, affective and psychomotor domains in students. If one is left, for example the affective domain, it can happen that a child who does not like being thrown with a ball will try to respond by waiting for his friend who threw it to be thrown back. But if they have a positive attitude towards this game and the aspect of cooperation becomes the focus of attention in learning, it will not happen that a child only pursues an opponent that he does not like.

According to Sugiyanto and Sujarwo (1993) [13] Education as a process of human development that lasts a lifetime. Physical, Sports, and Health Education taught in schools has an important role, namely providing opportunities for students to be directly involved in various learning experiences through selected physical, sports, and health activities that are carried out systematically. The provision of learning experiences is directed at fostering better physical growth and psychological development, as well as forming a healthy and fit lifestyle for life.

Elementary school age children, when observed for some

time, will see how high their activities are. It was really hard for them to sit and be still. They always move running here and there, jumping, climbing, and jumping down and running again. These are all internal impulses or instincts that cannot be suppressed. If they sit quietly in class, they feel something torturous. When it was close to break time, the children looked restless. They looked at the watch intermittently which felt very slow. When the recess signal sounded, they rushed out of the classroom to the playground. They feel free from the torment they feel while sitting in the classroom. At the time they were doing various things in their yard, some ran screaming, some ran irregularly, which seemed aimless. All of these are characteristics / behavior of children to vent their joy. (Soemitro, 1992) [11].

Based on the results of observations that have been made in several elementary schools in North Minahasa Regency on Physical Education learning with baseball game material, the researchers observed that the baseball learning process by playing baseball was quite good but the Physical Education learning process from the school was the same, the baseball game learning provided still not packaged in the form of game modifications. The baseball used is less safe because a baseball made of too hard rubber can injure students. Baseball games that still use standard rules in general, it is necessary to develop or modify games that can develop media or tools according to the needs of fifth grade elementary school students. Here the researchers found the problems that occurred in the process of learning the baseball game as follows: (1) The rules used were standard in accordance with the rules of baseball games in general. (2) Baseball game requires a large field but with bumpy field conditions such as a football field making it difficult for students to bounce the ball. According to Hastre (2004) with this, it is necessary to modify learning that is fun and attracts students' interest in learning baseball games in Physical Education learning at school. Modification of the baseball game is one way to overcome student boredom in physical education. Modification of sports games is not intended to change the nature of the sport, but to adjust the situation and conditions of the game so that it can be played and enjoyed by certain groups of players, which in this case are children of elementary school age. Modifications are made solely for children to play in physical education classes. Modifications should be directed at secondary rules so that the nature / characteristics of the baseball game itself is not lost. The modification of the baseball game used by the researcher is a learning method to increase student participation in the physical education and learning process. In order not to be sustainable, the baseball game can be modified by adjusting the facilities and infrastructure owned by the school. From these problems, researchers are interested in developing the Physical Education learning model into a study entitled "Development of a Baseball Game Learning Model Through Modification of the Castle for Class V Students at Pulisan Elementary School in 2020" as a vehicle for creating innovative Physical Education learning, to make learning that is more interesting and fun, which is also beneficial for the development and growth of students.

Research Methods

Development Procedure

The development procedure will describe the procedures that will be taken by researchers in making the product. In the procedure the researcher will mention the components at each stage that will be developed. The following chart will present the stages of the procedure for developing modifications to the Kastul game rules.

Needs Analysis

Needs analysis is the first step in conducting this research. This step aims to determine whether the castle learning model through this castle game is needed or not. At this stage the researcher made observations at SD Inpres Pulisan by observing during learning.

Initial Product Creation

Based on the results of the needs analysis, the next step taken by the researcher is the manufacture of a baseball game model product. In the manufacture of the developed product, the researcher makes a product based on a theoretical study and the results of an evaluation by an expert in baseball sports and an expert in learning I and learning II. The research subjects were fifth grade students of SD Inpres Pulisan.

Castle Game Facilities and Equipment

1. Field
2. Ball
3. Batter
4. Wooden Board

Castle Game Rules

1. Castle Rules
2. Guard Squad Tasks
3. Battering Squad
4. Referee
5. Game duration
6. Throw Target
7. Change of Party and Venue
8. Player is declared dead
9. Value

A hitter will get 2 points, if he can run from the batting room to the free post and back to the free space safely, on his own stroke. If the return trip to free space is made in 2 or 3 parts safely and the stroke is correct, then the runner will get a score of 1.

Each member of the field team will get a value of 1, if they can catch the ball once. If at the end of the match the total scores of the two teams are the same, then the team with the most running scores is declared the winner.

Revision I

Based on suggestions from physical education experts and learning experts on products or models that have been tested into small-scale trials, product revisions can be carried out immediately. Problems and obstacles that arise when the product development of the Kastul game is developed to encourage basic movement skills are tested on a small scale, solutions and solutions need to be found. This really needs to be done as an improvement to the model for large-scale trials.

The problems that arise during the implementation of small-scale trials are as follows:

1. Field area
2. Child movement / tends to clump

3. Game rules clarified
4. The tools used must be safe
5. Made a place for free space

Trial I
Small group trials or limited trials are conducted on small groups as users of the product. At this stage, a small group test was carried out on the product developed by using the test subjects of the fifth grade students of SD Inpres Pulisan with the number of subjects as many as 19 students with the method 19 students divided into 2 teams, each team consisting of 9 players tested the product.

Revision II
In revision II, the results obtained are improvements from product development in small groups.

Trial II
At this stage, a field test was carried out on the product developed using the test subjects of fifth grade students of SD Inpres Pulisan with a total of 19 students with the method 19 students divided into several teams then competed with each other and was carried out many times to find a good model.

Revision III
In revision III the results obtained are improvements from product development in large groups.
Final Result
The final product of the development of the field test in the form of a KASTUL game model.

Product Trial
Product trials are intended to collect data that can be used as a basis for determining the level of effectiveness, efficiency, and or attractiveness of the resulting product. Therefore, the types of data collected are as follows:

1. An effective learning model, meaning that the data is dug up whether the trials carried out can develop the cognitive, affective, psychomotor and physical learners.
2. Data showing conformity with the basic competencies contained in the curriculum material.
3. Easy for all students to do.
4. Fun and encourage students to be active.
5. Safe and comfortable for students.
6. Learners become active and do not, on the contrary, become passive in moving.
7. The implementation time is according to face-to-face learning hours for Physical Education and Health.
8. The existing facilities around the physical environment outside the school without destroying environmental sustainability.

Trial Design
The trial design carried out aims to determine the level of effectiveness and in terms of utilization of the developed product. The trial design carried out consists of:

Trial I
A small trial was conducted with 19 students, which would be divided into 2 teams, one team consisting of 9 people.
First, students are given directions and explanations about the rules of the game. After conducting the test, the students filled out a questionnaire about the games they had played. The purpose of this small group trial is to find out the initial response of the product being developed. This response or revision will later be used as correction material in conducting large group trials.

Revision II
Several revisions from small groups to large groups from Physical Education experts and learning experts I and Learning II experts are as follows:

1. A bouncing device when the ball is hit and the bat comes off (safety).
2. The castle game field because students have difficulty in playing to stop or continue.
3. The size of the castle playing field is expanded and adjusted to the number of students to be played.
4. Each post or relief post is given a dividing line or circle.
5. The width and length of the field to be adjusted and the distance of the first pole and second aid pole for further distance.

After making changes while playing, children do not look in groups anymore and the level of security is more guaranteed because children tend not to play hard.

Trial II
A large-scale test was conducted with 19 students. Where will be divided into 2 teams. First, students are given an explanation of the revised baseball game rules. Then the students did a trial of the Kastul game. After conducting the trial, students filled out a questionnaire about the games they had played.

Revision III
In the third revision of physical education experts, learning experts I and learning experts II the results obtained were improvements from product development in large groups. After the large group trial, it was found that all aspects were fulfilled well.

Final Result
The final result of the product development from the large group trial, then the final product development result in the form of developing baseball learning through playing castle.

Trial Subject
The test subjects in this study were as follows: (1) Expert evaluation consisting of physical education and learning experts (2) Trial I consisted of 19 fifth grade students of SD Inpres Pulisan, (3) Field trial consisting of 19 students class V SD Inpres Pulisan.

Product Design
It is the overall plan of the Kastul game development learning model to encourage the improvement of the movement skills of the Pulisan Inpres Elementary School students.

Data Type
The types of data in this study are qualitative and quantitative data. Qualitative data were obtained from the evaluation results of physical education experts, learning experts I and learning experts II as material for product revision. While quantitative data obtained from questionnaires.

Data Collection Instruments

The instrument used to collect data is in the form of questionnaires and observations. Questionnaires were used to collect data from expert evaluations and trials. The reason for choosing the questionnaire is because there are relatively many subjects so that it is carried out simultaneously and in a short time. The experts and students were given different questionnaires. The expert questionnaire focused on the first product that was made, while the questionnaire for students focused on the convenience of using the product, namely in a modified baseball game. Are students able to play with different rules from baseball in general?

The questionnaire used for the expert is in the form of a number of aspects that must be assessed for feasibility. The factor used in the questionnaire is the quality of the "KASTUL" baseball game model. As well as general comments and suggestions if any. Evaluation ranges from "no" to "very good" by marking (v) in the column provided.

1. not good
2. not good
3. pretty good
4. good
5. very good

The following are the factors, indicators, and the number of questionnaire items that will be used in the questionnaire.

The questionnaire used by students is in the form of a number of questions, which must be answered by students with alternative answers of "yes" and "no". The factors used in the questionnaire include psychomotor, cognitive, and affective aspects. The method of scoring the alternative answers is as follows.

The following are the factors, indicators, and the number of questionnaire items that will be used on students:

Data Analysis

The data analysis technique used in this development research is to use descriptive analysis techniques in the form of percentages. While the data in the form of suggestions and reasons for choosing answers were analyzed using qualitative analysis techniques. In data processing, the percentage is obtained by the formula from Muhammad Ali (1987), namely:

From the results obtained, the percentage is then classified to obtain data conclusions. Tables 4 and 5 will present the classification in percentage terms.

Results and Discussion

Results of Trial Data Analysis I

The analysis of the trial data based on the data analysis table obtained through the expert questionnaire can be concluded as follows.

The results of the analysis of expert evaluation data get an average percentage of 87%. Based on the predetermined criteria, the Kastul game development product has met the "Good" criteria.

Based on the results of the pulse rate, an average of 50% meets the criteria of "good enough". Based on the data, the average percentage of questionnaire results on cognitive and affective aspects and observations on psychomotor aspects was 75%. Based on the specified criteria, this Kastul game development model has met the criteria of 75% still needs improvement so that it can become a "good" criterion so that it is suitable for use in fifth grade students of SD Inpres Pulisan.

Product Revision

Several revisions from small groups to large groups from Physical Education experts and learning experts I and Learning II experts are as follows:

1. A bouncing device when the ball is hit and the bat comes off (safety).
2. The castle game field because students have difficulty in playing to stop or continue.
3. The size of the castle playing field is expanded and adjusted to the number of students to be played.
4. Game rules to be clarified so that students have no difficulty in playing and can understand them.
5. Made the board easier to bounce.
6. Each post or relief pole is given a dividing line or circle.
7. The width and length of the field to be adjusted and the distance of the first pole and second aid pole for more distance.

After making changes while playing, children do not look in groups anymore and the level of security is more guaranteed because children tend not to play hard.

Presentation of Test Result Data II

At this stage, a field test was conducted on the product developed using the test subjects of the fifth grade students of SD Inpres Pulisan with a total of 19 students. Experimental research II was conducted 2 times. In this case, what is measured in the second trial is the cognitive, affective, and psychomotor aspects in the form of questionnaires and observations.

Description of Test II Pulse Result Data

Table 1: Results of Trial Pulse Rate II

No	Description	Assessment score
		Denyut Nadi
1	Quantity	953
2	Percentage	50%

Based on the table, it can be seen the total results of the pulse rate assessment with an average percentage of 50%.

Description of Data Validation Expert Trial II

Table 2: Assessment Results of Physical Education Experts and Experimental Learning Experts II

No	Description	Rating score		
		Expert Physical education	Expert Learning 1	Expert Learning 2
1	Quantity	69	70	72
2	Average	0,92	0,93	0,96
3	Percentage	**92%**	**93%**	**96%**

For the average percentage of all aspects based on the assessment of Physical Education experts and learning experts, the percentage is 93.60%. Based on the criteria that have been applied, it has met the criteria of "Good".

Description of Trial Data II

Trial II aims to determine the effectiveness of the changes after being evaluated by experts so that this learning can be

used in a real environment. The second trial was carried out on the fifth grade students of SD Inpres Pulisan, totaling 19 students. In the following, the percentage of the questionnaire results and the results of the observations of the second trial are presented.

Table 3: Results of observations and student questionnaires (Trial II)

No	Aspek	Percentage
1.	Cognitive	84%
2.	Affective	84%
3.	Psychomotor	82.5%
	Average	83.5 %

Based on the data on the results of the questionnaires filled out by students in the second trial, the percentage of answers that match the aspects of the castle game was obtained at 83.5%.

Results of Trial Data Analysis II

The analysis of the trial data based on the data analysis table obtained through the expert questionnaire can be concluded as follows.

The results of the analysis of expert evaluation data get an average percentage of 93.60%. Based on the predetermined criteria, the Kastul game development product has met the "Good" criteria.

Based on the results of the pulse rate, an average of 50% meets the criteria of "good enough". Based on the data, the average percentage of questionnaire results on cognitive and affective aspects and observations on psychomotor aspects was 83.5%.

Based on the specified criteria, the Kastul game development model has met the criteria of 83% being "good" criteria so it is suitable for use in fifth grade students of SD Inpres Pulisan.

Product Prototype

Kastul is a modification of the baseball game where before the batsman makes a stroke, a bat has two roles as a bat and as a bouncer.

Here in the game of castle, there are no players as a float, while in the standard baseball game, there are players who serve as floats. Instead, there is a board as a tool for bouncing the ball, after which the hitter is allowed to run past the three perched poles and return to the free space to get a score.

Castle Play Facilities and Equipment

1. Field
2. 2. Tennis Ball
3. Batter
4. Wooden Board

Castle Game Rules

1. Rules of playing Castle
2. The duty of the guard squad
3. The task of the batting squad
4. Referee
5. Game duration
6. Throw Target
7. Change of Party and Venue
8. Player is declared dead
9. Value

A hitter will get 2 points, if he can run from the batting room to the free post and back to the free space safely, on his own stroke.

If the return trip to free space is made in 2 or 3 parts safely and the stroke is correct, then the runner will get a score of 1.

Each member of the field team will get a value of 1, if they can catch the ball once. If at the end of the match the total scores of the two teams are the same, then the team with the most running scores is declared the winner.

Advantages of Castle Games

During the learning of the Kastul game, the students were very enthusiastic in playing the game. There are several things that make this learning interesting and easy for students to understand:

1. Make students more interested in actively moving in following learning.
2. Make the learning process more effective and fun.
3. Make children more enthusiastic because of interesting games
4. The equipment used for the game is easy to make and can be found anywhere
5. The modified field is more interesting so that it motivates students to do learning
6. Modified games add to the cognitive aspects of students
7. Can be done in schools that do not have a large enough yard.

Weaknesses of Castle Games

There are several things that make this Kastul game learning weak, including:

1. The level of ability of male and female students is different so it needs special handling on female students' games.
2. There are students who do not understand because their understanding problems are not like other friends because everyone has different understanding problems so a personal approach is needed.
3. In the game during the match, there is often physical contact between players which causes children to fall and get injured.

Conclusion

Based on the results of research and discussion in this thesis, it can be concluded as follows:

1. The product of the Kastul game model can and is feasible to be used in the physical education learning process. This is based on data analysis on small-scale trials obtained from the evaluation of physical education experts' assessments obtained an average percentage of 77.3%, evaluations of learning expert assessments I obtained an average of 77.3% and evaluations of learning expert assessments II obtained an average of 86.6%. The average assessment of Physical Education experts and learning experts is 80.40%. Based on the criteria that have been set, this Kastul game product has met the good criteria and is suitable for use.
2. The product of the Kastul game model can already be used in the physical education learning process. This is based on the analysis of small group trial data, the average percentage of suitable answer choices is 75% with very good criteria and the results of large-scale

trial data analysis obtained an average percentage of suitable answer choices of 83.5% with very feasible criteria. Based on predetermined criteria, this Kastul game has met the criteria, so it can be used for students

3. The factor that makes the Kastul game model acceptable to elementary school students is that from all aspects of the existing trials, more than 83.5% of students can practice it well. Both from an understanding of the rules of the game, the application of attitudes in the game and student movement activities that are in accordance with the level of growth and development. Overall, the Kastul game model is well received by students and can be used for fifth graders at SD Inpres Pulisan in 2020
4. The product of the Kastul game model can increase students' movement activities, when viewed from the pulse measurement, there is an increase in the pulse rate before doing the activity with the pulse after doing the activity. Based on these improvements, the Kastul game model can increase the movement activity of fifth graders of SD Inpres Pulisan

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