

Development of Physical Fitness Materials based on Traditional Games for Junior High School

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Abstract—In general, the purpose of this research is to produce physical fitness teaching materials based on traditional games. It is carried out to obtain in-depth information about: the development and application of physical fitness teaching materials based on traditional games and knowing the effectiveness, efficiency and attractiveness. This research uses a uses the Research & Development method (Borg and Gall). The instrument used in this research and development was a questionnaire used to collect data at the stage of: (1) needs analysis; (2) expert evaluation; (3) limited trials; and (4) the main test. The effectiveness of applying physical fitness teaching materials is based on this traditional game using the "t-test" technique. Before the data were analyzed, normality tests were performed on the data of the pretest and posttest results of physical fitness teaching materials using the Lilliefors test at a significant level of $\alpha = 0.05$. Based on the results of the development can be concluded that: (1) By physical fitness teaching materials based on traditional games, children can learn effectively and efficiently. (2) Then, the model have developed, children are more motivated and active in following the physical education learning process in particular physical fitness material.

Keywords— *development, physical fitness, traditional game*

I. INTRODUCTION

Physical education and sports provide opportunities for students to be physically active during school. Strong, et al have many benefits, including developing motor skills, increasing physical fitness and self-esteem [1]. Trudeau, F. & Shephard, RJ reduce factor levels risk of heart disease and obesity, as well as maintaining and or improving the academic performance of students [2]. That giving enough time in physical education and exercise will increase students' maximum energy use, this is a key contributor to maintain healthy weight and physical fitness. This is supported by Silverman which states that learning design designed by the teacher, it is important to remember that each student requires a number of different times and exercises to acquire good skills and to be able to master the movement in more skills [3].

Rink said There are four criteria that must be considered by a physical education and sports teacher in making a learning experience for students are; (1) learning experience must have the potential to improve the ability of students to move; (2) learning experience must provide maximum activity or time to practice to all students appropriately to the level of ability of students; (3) the learning experience must be appropriate for the level of experience of all students; and (4) learning experience must have the potential to integrate educational goals (skills, attitudes, and knowledge) whenever

possible. Learning experience can be done through playing activities [4].

Hardman and Jones argues that "In the past few decades, a significant body of knowledge has developed in which sport has been examined from a social and cultural perspective [5]. Sport is not necessary for human survival but serves a series of significant social and cultural interest and goals. Sukintaka states in his book about the nature of playing; (1) Playing is an activity carried out voluntarily on the basis of feeling happy. (2) Playing with pleasure, growing activities carried out spontaneously. (3) Playing with pleasure, to obtain pleasure, to raise awareness to play well need to practice, sometimes requiring collaboration with friends, respect for opponents, knowing the ability of friends, obeying the rules, and knowing their own abilities [6]. The function of playing activities in children is mastery play, in line with the opinion of Tedjasaputra has stated most children's play activities are called mastery play, or playing to master certain skills because these activities can be an exercise for children to master skills a new one for him through the repetitions of the child [7].

There are several influences in play that concluded by Furqon in the development of children. They are: 1) Development of movement skills, 2) physical development and physical fitness, 3) encouragement to communicate, 4) Distribution for pent-up emotional energy, 5) Distribution for needs and desires, 6) Learning resources, 7) Stimulation for creativity, 8) Development of self-insight, 9) Learning in society, 10) Development of personality [8].

Playing will increase physical fitness and ability for moving. So that in the game the child must meet certain criteria, according to Furqon suggests that "in choosing a game must: 1) be fun, 2) provide maximum activity for all children, 3) improve the development of certain motion skills and / or develop and maintain children's physical freshness; to carry out core activities, maximum activity is very important, and 4) increase inclusion [9]. All the game need a interaction for the player like Soute et.al stated "A game can provide the venue for a range of social interactions to unfold, competition, cooperation, negotiation, etc [10].

Mu'arifin has states that games are part of play that has been limited by rules that are deliberately developed to be adhered to so that the game can take place smoothly, safely and fairly [11]. Games conditioned by official rules in sports activities are usually in the form of competitions, both in the form of matches and competitions that function to determine the superiority or success of individuals or groups. Traditional Games are games played by children in the past. Traditional games are a means to introduce children to the

cultural values and social norms needed to establish relationships or social contacts and play a role that is appropriate to social position in society. Traditional games not only provide recreational value or have fun. More than that, traditional games also have the value of physical education (sports) and even social values. This is because in traditional games there are elements such as sportsmanship, honesty, accuracy, agility, accuracy in determining steps, and working together in groups.

Traditional games are one of Indonesia's games that live and thrive in the community regenerating. Indonesia has a variety of traditional games, one of them on the island of Java. Various traditional games in the island of Java like a Pathil Lele, Pandhe, Dakon, Cublek-cublek Suweng, Gobak Sodor, Karambol, Beteng-Betengan, Egrang, Engkle etc. All of these games are often found, but the ones most often used to fill race events and regional custom events are traditional Javanese Egrang games. The traditional Javanese Egrang game consists of two games namely, bamboo stilts and stilts. Bamboo stilts are stilts that use two meters of bamboo material and are given a 50cm footing from the ground. In addition to knowing the bamboo stilts, Javanese people also know the Egrang, namely the game of stilts that uses coconut shell as a footing and is given a hook to lift the feet that are raised. The benefits of Egrang games are more found in Egrang bamboo, such as maintaining balance, hard work, tenacity, creativity, skill, and speed.

The game of bamboo stilts can be found in various regions in Indonesia with different names, among others, from the area of West Sumatra with the name of noses, from the Bengkulu region as Ingkau which means bamboo shoes, or from South Kalimantan as the Batungkau and from the Java region namely Egrang. Egrang in Java can be played by all people, especially children, both individuals and groups. This Egrang bamboo game is more often used and found in events and competitions compared to other traditional games. However, the game is now rarely played again

Each region has a game that has almost the same implementation or many similarities with games in other regions. About the name of the game there is the same, but not infrequently the name is different from other regions. As an example can be stated in Central Java known as the gobak sodor game, in Jakarta it is called Galasin, while in North Sumatra it is called Margalah. But clearly the game has the same game rules. So as not to confuse one of the regional names, the Sports Director named the game with the name of the game. The problem faced is the ignorance of children, especially health and recreation physical education teachers that the game Hadang or Gobak Sodor, Egrang, Balap Karung and others is one way to teach body fitness, especially to children of junior high school, inside Hadang or Gobak Sodor, Engrang and Balap Karung games have not been packaged in modified form, and students are less enthusiastic.

Observation activities through observation and interviews with physical education teachers and students of physical and physical education teaching materials based on traditional Indonesian games showed that physical fitness teaching materials were still rarely delivered using traditional games. For this reason, researchers are motivated to develop physical education teaching materials that bring local

wisdom, namely by re-raising traditional games that are now being abandoned by modern children. Other reasons besides developing local wisdom traditional games are also entertaining, not expensive, easy to do and do not require a large room or place, because this game can adjust to the field environment in the school. Based on the description, the researcher is interested in conducting research by making the development of teaching materials with the title: Development of Physical Fitness Learning Materials Based on Traditional Games for Junior High School. The resulting product certainly has advantages in the delivery of physical fitness material in schools such as the teaching material delivered is more interesting and easy to do. The products produced are expected to be useful as a physical education teacher reference to overcome the limitations of facilities and infrastructure in the Sports and Health physical education learning process, especially a game that emphasizes agility, speed and thorough.

II. METHODS

The design of this study refers to Borg and Gall's (1983) (Research and Development) that have modified by the researcher as needed. (1) Needs Analysis and Field Observation, (2) Preparing a Research Plan, (3) Initial Product Development, (4) Early Stage Trials, (5) Initial Product Revision, (6) Main Trial Test (7) Product Revision (8) Main Try Out, (9) Final Revision and (10) Dissemination and Implementation [12].

The subjects of this study were 7th graders at Probolinggo City Junior High School who were taken using a random sampling technique. The type of data produced in the form of quantitative data and qualitative data. Qualitative data obtained from the data from the review of suggestions and input from experts. Quantitative data uses descriptive quantitative analysis techniques with percentage and T-test statistics on product effectiveness tests. The subjects involved in this development are as follows: (1) the subject as the initial research (needs analysis) was interviewed with 1 teacher and 24 students Junior High School, (2) the expert evaluation subject consisted of 3 physical fitness experts, 1 experts in physical education learning (3) the first stage trial subjects were 10 students from Probolinggo City 1 Junior High School (4) Phase II trial subjects (field trials) were 60 students Junior High School.

III. RESULT AND DISCUSSION

The study was carried out in junior high schools by involving teachers and junior high school students as a place of implementation. The initial activity carried out by the researcher to get results that answer the research problem is by analyzing the needs. Researchers did preliminary research or needs analysis by getting data from the questionnaire to the health teacher Junior High School, it can be seen that: (1) the teacher has taught some physical fitness teaching materials, for example: running 100m, running zig-zag, sometimes also doing competition . (2) Currently the teacher uses mattresses and cones in the delivery of physical fitness teaching materials. (3) Students enthusiastic learning using the game. (4) During this time physical education teachers have tried to make students interested with game models and tools. (5) In general, teachers really need various kinds of varied physical fitness teaching materials.

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Dev	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pretest - Posttest	-32.561	1.628	.200	-32.961	-32.160	-162.492	65	.000

From the students needs, it was concluded that for questionnaires about check on learning media supporting variables currently used with 1 instrument, the results obtained were 0 students or 0% answering modules, 1 student or 1% answering books, 23 students or 24% answering tools display, 3 students or 3% answer videos. For the media desired by students with 1 instrument, 6 students or 6.3% answered the module, 23 or 24% answered the book, 4 students or 4.2% answered the teaching aids, and 11 students answered the video. Variables of learning activities supporting tools that are currently used with 1 instrument are obtained by 24 students or 25% answering baskets and 13 students or 14% answering cones. Variables supporting learning activities desired by students with 1 instrument obtained results of 11 students or 11.5% answering basket, 17 students or 18% of students answered holahop, 23 or 23, 96% answered plastic balls, and 19 students or 19.79 % answered the cone. As many as 67.7% of students wanted the entry of game elements, 86.5% of students were interested in new physical fitness teaching materials. In the desired model delivery variable with 1 instrument obtained 16 students or 16% varied, 10 students or 10% of students answered easily understood, 12 students or 12% answered pleasantly, and 11 students or 11% of students answered simply.

Based on the results of the needs analysis, it can be seen that students already know about physical fitness material, but in the class they are still teacher-centered, so that the concept of student center learning is not achieved. In addition, it can be seen that learning especially physical fitness material is still monotonous, therefore researchers use some teaching materials to convey physical fitness material that aims to make students not bored in attending physical education subjects. In the material given by the researcher focused on traditional game-based teaching materials. The teaching material presented will be based on the activities of collaborating between students, games and tournaments between students or teams so that the fun and busy physical learning concept can be achieved with the development of traditional game-based teaching materials.

After carrying out the data collection and drafting of teaching materials, the next step is to do an expert test. The expert review was carried out on four experts with the qualifications of 3 physical fitness experts, one physical education learning expert. The purpose of this expert review was to obtain the feasibility or validity of the model, the

accuracy and suitability of products developed with the needs in the field. Expert opinion was collected using a questionnaire containing questions and suggestions. Based on the expert test carried out, it can be concluded that variations in physical fitness teaching materials are feasible and can be used and produce 45 variations of teaching materials based on traditional games namely, Balap Karung, Egrang and Gobak Sodor for junior high school.

The next step after 45 models experienced a revision from the expert then proceed with the main trial using research subjects as many as 60 students from junior high school. In the opinion of experts on the development of physical fitness based traditional game teaching materials for junior high school which have been piloted in the main trials (field testing), it turns out that the use of developed models does not need to be revised because all aspects have met the standards to be used so that product trials can be carried out by testing effectiveness and efficiency in the learning process.

The next step is an operational trial (effectiveness test). This test involves a wider audience. The main purpose of this step is: how effective are the results of applying the design of the model to the research objectives. The research at this stage used a quantitative approach, with the pre-experimental research design in the form of the one group pretest-posttest design.

TABLE II. RESEACH DESIGN FOR EFFECTIVITY TEST MODEL

Subyek	Pre-test	Treatment	Post-test
R	O ₁	P	O ₂

The results of the model effectiveness tests carried out in this study were to test 60 students from 3 schools namely: Junior High School 1, Junior High School 4, and Junior High School 8, which were given treatment using 45 models of Physical Fitness Based Teaching Materials Traditional Games for Junior High School. This treatment is given for 5 meetings. While the test used in this study is to use the Indonesian Physical Fitness Test (TKJI) to determine the results of students 'physical fitness and by using observation guidelines for students' attitudes to determine the attitudes / affective students in the ongoing learning process. The following are the results of the T Test statistics Physical fitness test and student's attitude / affective observation:

Based on table 3 below, because the value of α (0.005) > $\frac{1}{2}$ Sig. (2-tailed) (0,000) then H₀ is rejected, that there is a significant increase in physical fitness test results before and after receiving physical fitness teaching materials based on traditional games.

TABLE III. PAIRED SAMPLES TEST TKJI

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pretest - Posttest	-3.015	1.949	240	-3.494	-2.536	-12.566	5	.000

TABLE IV. PAIRED SAMPLES ATTITUDE TEST

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pretest - Posttest	-32.561	1.628	.200	-32.961	-32.160	-162.492	65	.000

In table 4 above shows the value of $\alpha (0.005) > \frac{1}{2}$ Sig. (2-tailed) (0,000) then H_0 is rejected, that there is a significant increase in affective students before and after physical fitness based instructional materials based on traditional games.

Based on the data above shows a significant increase in physical fitness and attitudes / affective students after treatment with physical fitness teaching materials based on traditional games. Model of physical fitness teaching materials based on traditional games for junior high school students developed and made by researchers is a product that aims to assist teachers in delivering physical fitness material, improving physical fitness and attitudes / affective students, and as reference material for teaching. The advantages of this product can make students motivated in the teaching and learning process, as well as making students more active, collaborating, appreciating, sportsmanship in the learning process, so that in turn physical education learning goals are achieved effectively and efficiently.

IV. CONCLUSION

A. Conclusion

From the discussion of the study, it can be concluded that

1) *The expert evaluation and the trials show the final or final model includes:* (1) Gobak Sodor, (2) Gobak Sodor Bola, (3) Gobak Sodor Gawang, (4) Gobak Sodor Holahop, (5) Gobak Sodor Keranjang, (6) Balap Karung, (7) Balap Karung Botol, (8) Balap Karung Bola, (9) Balap Karung Pindah Bola, (10) Balap Karung Zig-Zag, (11) Balap Karung Zig-Zag Mundur, (12) Balap Karung Lintasan Segitiga, (13) Balap Karung Rintangan Cone, (14) Balap Karung Batas Persegi, (15) Balap Karung Batas Persegi Mundur, (16) Balap Karung Bendera, (17) Balap Karung Bendera Mundur, (18) Balap Karung Batas Lingkaran and Persegi, (19) Balap Karung Tikus and Kucing, (20) Balap Karung

Duduk, (21) Balap Karung Beralih, (22) Balap Karung Jalur L, (23) Balap Karung Jalur L Mundur, (24) Balap Karung Siapa Cepat, (25) Balap Karung Biru Merah, (26) Balap Karung Gawang Mini, (27) Egrang, (28) Egrang Mundur, (29) Egrang Samping, (30) Egrang Zig-Zag, (31) Egrang Lingkaran, (32) Egrang Estafet, (33) Egrang Lingkaran Mundur, (34) Egrang Estafet Mundur, (35) Egrang Bendera, (36) Egrang Berpetak, (37) Egrang Berpetak Mundur, (38) Egrang Estafet Berpetak, (39) Egrang Estafet Mundur Berpetak, (40) Egrang Estafet Bendera, (41) Egrang Estafet Mundur Bendera, (42) Balap and Egrang, (43) Balap and Egrang Mundur, (44) Balap, Egrang and Bendera, dan (45) Egrang Persegi.

2) *The model effectiveness test, it was empirically proven that the results of products in the form of physical fitness teaching materials based on traditional games for junior high school had very good effectiveness.* This is based on the results of physical fitness tests which show that the average price of posttest results is greater than the average results of the pretest. So that it can be stated that, physical fitness teaching materials based on traditional games for junior high school age are effectively used to improve physical fitness in junior high school.

B. Implication

Physical fitness teaching material products based on traditional games for junior high school age turned out to be entirely feasible and effective for students to use. Thus, the implications of these findings are that physical fitness teaching materials based on traditional games for junior high school age should be considered by teachers or as an alternative guide or reference for physical fitness learning activities for junior high school, because it is effective for improve student physical fitness results.

C. Utilization Advice

This development product is a physical fitness teaching material based on traditional games for junior high school that can be used as a reference by trainers, teachers, athletes and students. In using it, it is very important to consider the situation, conditions and infrastructure. As well as improving the quality of the teacher needs to be improved to achieve learning goals.

D. Dissemination Advice

In disseminating development products to broader targets, researchers recommend that before they are disseminated, these products should be rearranged for the better, whether it is about display packaging or the contents of the product material being developed. So that physical fitness teaching materials based on traditional games for junior high school can be used, it is better to print more, so that later users can find out and be able to improve physical fitness.

E. Further Development Advice

In developing this research further, researchers have some suggestions as to the subject of the study should be done on a broader subject, both in junior high school and in

sports clubs other than those used as trial groups. The results of physical fitness teaching materials based on traditional games for junior high school age can be disseminated to junior high schools in Indonesia.

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