

Modification of Athlete Equipment for Basic Level Physical Education Learning

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Abstract— The standard of athletic equipment is highly unlikely when given at elementary school age students, because for posture and weight load capability is still not feasible in primary school learning process. Priority in particular learning materials is to introduce fine athletics and to ensure that students can do teknik and style right in the motion of each number atletik. Tujuan modification athletic equipment development research is to train teachers to make modifications in learning skilled Physical Education particularly athletic material with material easy to find, easy to be processed in a simple, practical, and economical, so it is very appropriate to be used by all the schools, especially primary schools.

Keywords: *development, modification, athletics, physical education*

I. INTRODUCTION

Physical education in schools is known as Sports Physical Education and Health (PJOK) and creates interaction between teachers and students in learning to achieve shared goals. PJOK learning is identical to physical fitness and is also related to psychological conditions that come from the benefits of the physical education process [1].

Explained that "Sports education is physical education and sports are carried out as part of an organized and continuing education process to obtain knowledge, personality, skills, health, and physical fitness".

Physical education is an educational process that utilizes physical activities that are planned systematically aimed at developing and improving individuals organically, neuromuscularly, Perceptual, cognitive, and emotional, within the framework of the national education system. Physical education is an important part of the education process. That is, physical education is not just decoration or ornament attached to the school program as a tool to keep children busy. But physical education is an important part of education. Through well-directed physical education, children will develop skills that are useful for filling leisure time, engaging in activities that are conducive to developing healthy living, developing

socially, and contributing to their physical and mental health [2].

The physical education learning process of the teacher is expected to teach a variety of basic motion skills, techniques, and models of games and sports, internalization of values (sportsmanship, honesty, cooperation) as well as the habit of healthy living patterns. The implementation is not through conventional learning in the classroom that is theoretical study, but involves physical, mental, intellectual, emotional, and social elements. Activities provided in learning must get a didactic-methodical touch, so that the activities undertaken can achieve the learning objectives [3].

Physical education materials consist of small ball games, big ball games, athletics, gymnastics, water activities, and health lifestyle. Each student must meet the material competency qualifications with the teaching process delivered by the Physical Education teacher. The material contained in Physical Education is generally the same in each education unit, but the difference is the studies and insights that are adjusted to the level of the education unit.

Athletics is one of the basic subjects to be applied to elementary school students since grades 4,5, and 6. Athletics is the parent sport in realizing other sports branches because in athletics there are techniques for running, jumping, and throwing. All movements in athletics include all body movements and develop in other sports such as soccer, badminton, and others.

Athletics are very important to be applied to elementary school students and it is the school's responsibility to be able to facilitate the needs of each athletic number such as; 1) run numbers must have track and other supports such as goal, 2) jump numbers include long jump, high jump, and pole jumps, and jump jumps, 3) throw numbers include javelin throw, shot put, discus throw, and hammer throw.

Athletic ability which is the basic movement ability of every sports activity in general is very important to master to obtain harmonious movements when performing activities. Athletic activities require a didactic and methodical review of athletic teaching and training [4]. Athletic equipment standards

are very unlikely if given to elementary school age students, because for posture and the ability of heavy loads is still not feasible to be applied in the elementary school learning process. Priority in learning, especially athletic material, is to introduce well and to strive for students to do the right technique and style in moving each athletic number, and therefore it is necessary to modify athletic tools that can be used by elementary school students.

II. METHOD

The research design was designed using research and development (RnD) [5] design in the form of modification of athletic equipment in PJOK learning at the elementary school level. This research was conducted as a development of the products of kids' athletics and Children's Sports Equipment (POA) Kemenpora which previously existed. Product development through this research will be named "Athletic Modification Equipment" designed through modification of tools that are practical and economical in achieving effectiveness in the learning process.

Research Procedure using Instructional design (learning design) with ADDIE approach, which is an extension of analysis, design, development, implementation, and evaluation [6].

- Analysis: Perform analysis on the athletic equipment to be modified
- Design: Design of Athletic Modification Equipment
- Development and Implemetation: Manufacture and Use (Product Testing)
- Evaluation: Assessing and Revising Products

Data collection techniques carried out with 4 levels, namely: 1) Data "analysis" to find out the problems that occur in learning PJOK athletic material in elementary schools, 2) data "design" to design a product as an effort to solve problems, 3) data "development and Implementation "is the manufacture and use of products for product testing. 4) data "Evaluation" is the product valuation data and will provide information about

The instruments used to collect data are observation, documentation, Forum Group Discussion (FGD), interviews, and questionnaires. Data collection by observation and documentation techniques is used in level 1 data collection, and questionnaire and interview instruments are used to obtain data at level 2 to level 4. Instrument data collection by observation and documentation is used before making a product meaning that the data obtained from the instrument is used as a reference in make a product. The questionnaire and interview instruments are used when designing and completing the product so that the product feasibility results will be obtained.

Data obtained through testing activities are classified into two, namely quantitative data and qualitative data. Qualitative data in the form of criticism of suggestions raised by media experts, material experts, and students are then collected for improvement. Quantitative data analysis techniques in this study use descriptive statistical analysis , in the form of very less, less, good enough, good and very good statements that

are converted into quantitative data with a scale of 5, namely scoring from numbers 1 to 5. The steps in data analysis include: collecting rough data, giving a score, scoring obtained then converted into a value with a scale of 5. Next to calculate the percentage using the formula below:

$$P = \frac{t}{n} 100 \tag{1}$$

Note:

f = Subject Frequency

n = Total

P = Persentation

To make a decision, using the criteria set by Sutrisno Hadi as follows:

TABLE I. CRITERIA FOR DETERMINING PRESENTATION QUALIFICATION RATING SCALE VALUE [7]

Score	Scoring Scale	Qualification
1	0 – 55%	Very Bad
2	56 – 65 %	Bad
3	66 – 80 %	Good
4	81 – 100%	Very Good

III. RESULTS AND DISCUSSION

The development of athletic modification equipment for learning PJOK (Physical Education in Sport and Health) has its basis on the finding that athletic equipment is not fully available in elementary schools, thus making the learning activities of Athletics material limited and even passed up not to be learned. Teachers' efforts in developing athletic equipment in elementary schools have limitations in taking creativity so that the elements that become athletic material competencies can be realized.

The initial stage in product development is to analyze the analysis of athletic equipment contained in the basic school and then the numbers on athletic sports. The analysis was conducted by a research team, one student, 3 elementary school physical education experts. The analysis results obtained that the athletic material includes several numbers, namely developed are as follows::

1) *Running numbers* consisting of running short, medium, long distance, estafen, and brisk walking.

a) *The equipment developed* is the trajectory and some supporting tools. Equipment.

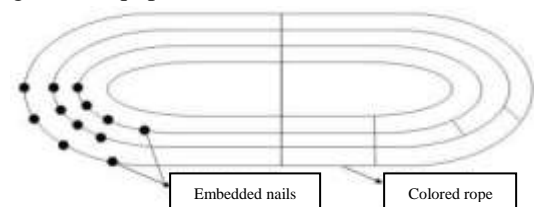


Fig. 1. Track Modification Design

b) *Wicket: Modification Wicket (run):* Modified material made from cardboard formed by a triangle. Size can be adjusted or with a height of 60-90 cm.

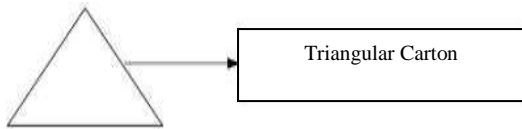


Fig. 2. Goal Modification Design

c) *Modification of baton relay:* Modified material made of wood (used broom handles) or water pipes. Size 30 cm long and 2.6 cm in diameter.



Fig. 3. Modification of the Relay Modification Stick

2) *A jump number* consisting of a long jump, pole jump, and high jump. The equipment developed is as follows:

d) *Long jump:* Modified material made from cardboard (box). Size per one cardboard (box): length 1 m and height 30 cm.

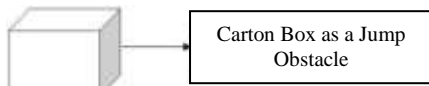


Fig. 4. Long Jump Modification Design

e) *Pole Vault:* Modified material made from bamboo / Scout stock as a pole and cardboard Value (Score). Galah length measures 2 m and a diameter of 4 cm, at each value given a distance of 1.5 m.

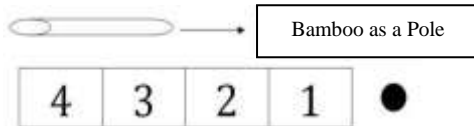


Fig. 5. Modification of pole vault modification

f) *High Jump:* Modified material made of rubber bands / tires, wall scores / scores, and people. The score wall consists of 5 categories and each distance is 0.5 cm, rubber length is 5 m (without being pulled).

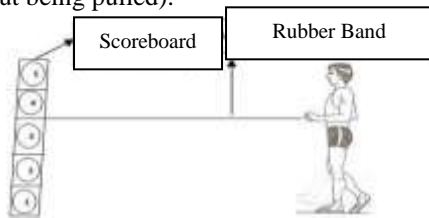


Fig. 6. High Jump Modification Design

3) *Throwing numbers* consisting of shot put, javelin throw, discus throw, and hammer throw. The equipment developed is as follows:

g) *Reject Bullets:* Modified material made of color balls measuring 6cm in diameter, then split or given a hole the size of a stone to be inserted. The ball can be filled with sand or stone. The size of the ball is 6cm and weighs 2-4 kg.



Fig. 7. Draft Bullet Modification Design

h) *Javelin Throw:* Modified material made from an empty bottle shaped like a rocket. Bottle size: 25-50 cm long and 4-10 cm in diameter.

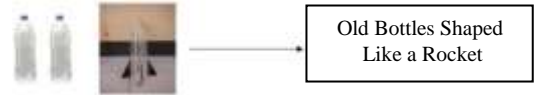


Fig. 8. Modification of the Javelin Throw Modification

i) *Discus Throw:* two plates that are held together or position of each other. Size of the plate: the diameter range is 20-25cm and the height is 5-6cm.



Fig. 9. Discus Design Modification

j) *Throwing Hammer:* color ball filled with sand and formed as a handle bonding. The size of the ball is 6cm and weighs 2-4 kg, the length of the rope can be adjusted or can be made with a length of 40 cm, and the handle limit is around 10cm.

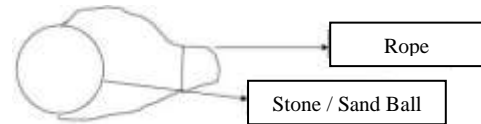


Fig. 10. Modification of the Hammer Throwing Modification

Modification of athletic equipment in Elementary Schools is exhibited by Primary School Teachers and Elementary School Students as the executors of making products. Athletic equipment modification products are tutorial-based, consisting of materials for modification of athletic equipment, techniques for making equipment, and how to practice athletic material in accordance with Primary School Physical Education (PJKR) competencies.

The application of the product can be used by all teachers and elementary schools because the modification of athletic equipment does not have a high level of difficulty. The materials used are simple materials that are usually found in schools such as cardboard, plastic balls, raffia ropes, hemp rope, small stones, sand, cement, knives, scissors, paper, nails, hammers, plastic plates, and adhesive materials that are modified. The product manufacturing process is simulated by elementary school students so that it makes it easy to understand the making and use of modified equipment.

IV. CONCLUSION

Development of modification of Athletic equipment for Elementary School level is arranged based on the principle of necessity needed so that the implementation of Athletic

material is not constrained due to limited equipment or even none. The main concept of Elementary School students that PJOK Learning is intended is to increase students' interest in learning movement so that the physical can grow according to the level of development, so what is needed is the basic skills of the techniques in athletic learning. Modification of athletic equipment is Corps Diplomatique audio-visual media in the form of a modification method for making athletic equipment from simple materials. The range of contents includes modification techniques for athletic equipment consisting of: 1) running track, 2) hurdles, 3) relay, 4) long jump, 5) high jump, 6) pole jump, 7) shot put, 8) javelin throw, 9) discus throwing, and 10) hammer throw. A whole set of modifications was formed so that the techniques that would be taught to students could be carried out with practical, effective, and economic equipment with materials that were easily found at school.

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