

## Development of Athletic Equipment Modifications In PJOK Learning Elementary School

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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 tenik 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 PJOK 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, Hardware, modification, Athletics, PJOK*

### 1. Introduction

Physical education in schools is known as the Physical Education and Health (PJOK) to create interaction between teachers and learners in the learning movement toward a common goal. Learning PJOK synonymous with physical fitness and is also associated with psychological conditions derived from the benefits due to the process being undertaken physical education. The Law on the National Keolahrgaan System 2005 Article 1, paragraph 11 stated that "Sports education is physical education and sport undertaken as part of the process of regular and ongoing education to acquire knowledge, personality, skills, health and physical fitness".

Physical education is the education process that utilizes physical activity that is planned systematically aims to develop and improve individual organically, neuromaskuler, perceptual, cognitive, and emotional, within the framework of the national education system. Physical education is an important part of the educational process. This means that physical education is not just a decoration or ornament affixed to the school program as a means to make the kids busy. But physical education is an important part of education. Through physical education directed properly, the child will develop skills that are useful for filling free time, engage in activities that are conducive to developing a healthy lifestyle, develops socially, and contribute to the physical and mental health(Rosdiani, 2013),

The learning process of physical education teachers are expected to teach a variety of basic motor skills, techniques, and models of games and sports, internalization of values (fairness, honesty, cooperation) and habituation to a healthy lifestyle. Implementation rather than through conventional learning in the classroom that is both theoretical study, but involve an element of physical, mental, intellectual, emotional, and social. Activities are given in the study had to get a touch didactic-methodical, so that the activities undertaken to achieve the learning objectives(Rahayu, 2013),

Physical education material consists of small ball game, a big ball games, athletics, gymnastics, water activities, health and lifestyle. Each learner must qualify the material competence with the process of teaching delivered by teachers Penjas. The materials contained in Penjas generally the same in each educational unit, but the difference is pendalam studies and tailored to the level of the educational unit.

Athletics is one of the basic subjects to apply to elementary school students from grade 4,5, and 6. Athletics is a sport aircraft in realizing other sports branches as in athletic motion techniques are running, jumping, and throwing. All movements in athletics covers the entire body movement and thrive on other sports such as football, badminton, and more.

Very important athletic applied to elementary school students and the responsibility of the school to facilitate the needs of each number athletics like; 1) The numbers run there should be a track and other support such goal, 2) jump event include long jump, high jump and pole vault, and jumping hopscotch, 3) throwing events include the javelin, shot put, discus, and ejection hammer.

Athletic ability is the ability of the basic movements of any sport activity in general is important mastered to obtain a harmonious movements while doing the activities. Athletic activities require a review of about didactic and methodical in teaching and athletic training (Sidik, 2014: 1). 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 the correct style in any number of athletic movement, and therefore the necessary modifications athletic tools that can be used by elementary school students.

The word comes from the Latin *media medius*, which literally means "middle", "middle" or "introduction". Gerlach and Ely outlined that the media can be understood broadly human, material, or events that establish conditions under which students are able to acquire the knowledge, skills, or attitudes. Other restrictions proposed by the experts namely AECT (Association of Education and Communication Technology, 1977) provides limits on media as any form and channel used for messages or information. The media also frequently replaced with the word mediator according to Fleming, 1987 (inArsyad, 2009) is the cause or instrument intervene and reconcile the two parties. Understanding some experts as explanations thus be concluded that the media is an invaluable tool in conveying the message, tools can be animate or inanimate objects, with the intention of achieving an information or messages to be delivered.

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 perform the correct technique and style in any number of athletic movement, and therefore the necessary modifications athletic tools that can be used by elementary school students.

## 2. Research methods

Implementation dirancangan study research design development or research and development (RnD) in the form of modification of athletic equipment at the elementary school level PJOK learning. This research was conducted as the development of products kids' athletics and Sporting Center (POA) Kemenpora previously existed. Product development through this investigation will be named "Hardware Modification Athletics" designed by modification of the practical and economical tool to achieve effectiveness in the learning process.

The research procedure using *Intructional design* (Instructional design) with ADDIE approach, which is an extension of the analysis, design, development, implementation, and evaluation (Sugiyono, 2016),

- 1) *analysis* : Perform analysis on athletic equipment that will be modified
- 2) *Design*: Equipment Design Modifications Athletic
- 3) *Development and implemetation* Preparation and Use (Testing Products)
- 4) *Evaluation* : Assessing and Product Revision

Data was collected at four levels: 1) Data "*analysis*" to find out the problems that occur in PJOK learning materials in primary school athletics, 2) the data "*design*" to design a product as the problem-solving efforts, 3) data, "*Development and Implementation*" is the manufacture and use of products for testing products. 4) Data "*evaluation*" is a product assessment data and will provide information about the feasibility of products to be used.

The instrument used to collect data were observation (observation), documentation, Forum Group Discussion (FGD), interviews, and questionnaires. The collection of data by observation and documentation used in the data collection level 1, and instruments used questionnaires and interviews to obtain data pada 4. Instrumen level 2 to level collecting data through observation and documentation used prior to the manufacture of the product means that the data obtained from the instrument used as a reference in made products. Questionnaires and interviews used when designing and completion product that will result product feasibility.

Data obtained through experimental activities are classified into two, namely quantitative data and qualitative kualitatif. Data the data in the form of criticisms and suggestions put forward by media experts, subject matter experts, and students then gathered for improvement. Quantitative data analysis techniques in this study using descriptive statistical analysis, the form of the statement is very less, less, is quite good, nice and very well converted into quantitative data with scale 5 that is by scoring dai numbers 1 to 5, Steps in data analysis, among others: gather raw data, scoring, score obtained is then converted into a value with a scale of 5. Furthermore, to calculate the percentage using the formula below:

$$P = \frac{f}{n} \times 100$$

Information: f = Frequency Subject  
 n = Number of Overall  
 P = Percentage of subjects test results

To take decisions using criteria established by Sutrisno Hadi as follows:

**Table 1.** Criteria For Determining Percentage

Value	Scoring scale	Qualification
1	0-55%	Very Poor Good
2	56-65%	Not good
3	66-80%	Well
4	81-100%	Very good

(Source:Hadi, 2004)

### 3. Results and Discussion

Development of learning PJOK athletic equipment modifications (of Physical Education and Health) have a base on the finding that happen that athletic equipment is not fully contained in an elementary school that makes learning activities Athletics material is limited and even passed it can be unlearned. The efforts of teachers in developing athletic equipment at the elementary school experience limitations in taking the creativity that the elements of the competence of athletic material can be realized.

Early stage in product development is to do analysis yaitu analysis contained athletic equipment in basic sekolah and the numbers on athletics. The analysis was conducted by the research team, a student, 3 elementary school physical education experts. The results of the analysis that the athletic material includes several numbers are:

- 1) Numbers run consisting of sprints, middle distance, estafen, and brisk walking. The equipment developed is the path and some supporting tools. The equipment developed is as follows:
  - a) Running Tracks: Materials modification is color plastic rope or other rope and made like a real running track. The shape of the track will make students interested in doing a run and give the students' understanding of the actual shape of the running track.

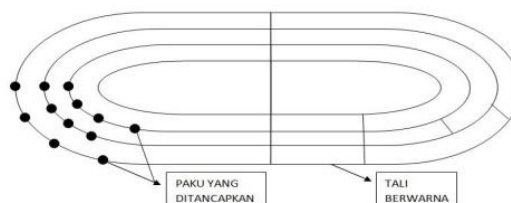


Figure 1. Design Modifications Tracks

- b) wicket : Modifications Hurdles (run): Material modified shaped cardboard segitiga. Ukuran can be adjusted or with a height of 60-90 cm.

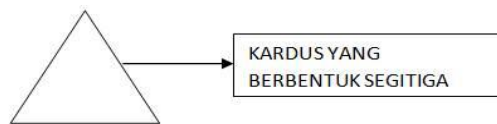


Figure 2. Design Modifications Hurdles

- c) Modification Wand Relay: Materials modified wooden (former broom handle) or air. Ukuran pipe length of 30 cm and a diameter of 2.6 cm.



Modification Design Stick Figure 3. Relay

- 2) Jump event which consists of the long jump, pole vault and high jump. The equipment developed is as follows:
  - a) Long jump : The modified material made of cardboard (box) .Ukuran per one cardboard (box): 1 m long and 30 cm high.

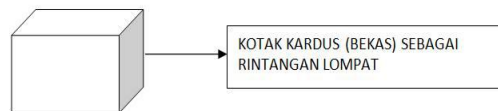


Figure 4. The design modification Long Jump

- b) Pole Vault: Modified Ingredients made from bamboo / stock Scouting as poles and cardboard Value (Score) .Ukuran pole length 2 m and a diameter of 4 cm, each value by a distance of 1.5 m.

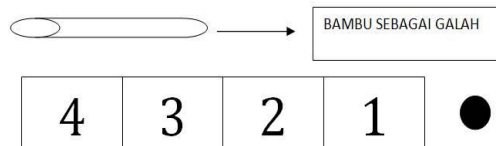


Figure 5. Design Modifications Pole vault

- c) High Jump: Material modified rubber bracelet / tires, walls scores / grades, and orang. Dinding score consists of five categories and each distance of 0.5 cm, length of rubber 5 m (without retractable).



Figure 6. Draft Modifications High jump

- 3) Throwing events consisting of the starting pelur, javelin, discus and hammer ejection. The equipment developed is as follows:
  - a) Shot put : The modified material made of ball-sized color 6cm diameter, then cut open or provided with holes for the stone to be inserted. The ball can be filled with sand or stone. 6cm ball size and weight of 2-4 kg.



Figure 7. Draft Modifications Shot put

- b) Javelin: Modified Ingredients made from empty bottles shaped like a bottle roket. Ukuran: bekisar length of 25-50 cm and a diameter of 4-10cm.



Figure 8. Draft Modifications Javelin

- c) Discus Throw: two plates are put together or each position menutup. Ukuran plate: a diameter of 20-25cm high and middle bekisar 5-6cm.



Figure 9. Draft Modifications Discus Throw

- d) Lontar Hammer: color balls filled with sand and formed a bond as pegangan. Ukuran ball 6cm and weighs 2-4 kg, length adjustable strap or can be made with a length of rope 40 cm, and made her grip limit of about 10cm.

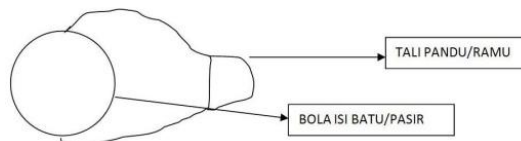


Figure 10. Modified Draft Lontar Hammer

Modification of athletic equipment at the elementary school was exhibited by the Primary School Teachers and Elementary School Students as the executor of the manufacture of the product. Athletic equipment modification products berbnetuk tutorial consisting of materials modification of athletic equipment, engineering equipment manufacturing, and how to practice athletics material in accordance with the competence of Primary School Physical Education (PJKR) Elementary School.

Application of the product can be used by all teachers and school primary school level for the manufacture of athletic equipment modifications do not have a high degree of difficulty. Materials used using simple ingredients are ingredients that are usually found in schools such as cardboard, plastic balls, ropes Rafiah, twine, small stones, sand, cement, knives, scissors, paper, nails, hammers, plastic plates, and adhesive materials dimidofikasi , Pembuatanproduk process simulated by elementary school students so as to provide ease in understanding the manufacture and use of the equipment is modified.

#### 4. Conclusion

Development of Athletic equipment modifications to the elementary school level is based on the principle of the necessary requirements for the implementation of Athletics material are not constrained due to limited equipment or even non-existent. The main concept of elementary school students that learning is increasing interest PJOK referred students to learn physical movement can grow as the level of development, so that what is needed is a basic skill to learning techniques on athletics. Athletic equipment modification products adalahCorps Diplomatiqe audiovisual media in the form of a method of making a modification of athletic equipment from simple ingredients. The series of product content modification techniques include the manufacture of athletic equipment

consisting of: 1) the running track, 2) goal, 3) relay, 4) the long jump, 5) high jump, 6) pole vault, 7) shot put, 8) javelin, 9) throwing, and 10) ejection hammer. The whole series of modifications shaped to techniques that will be taught to students can do with the equipment that is practical, effective, and economical with materials easily found in the school.

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