



Development of A Learning Model For Basic Javaline Throwing Movements Through The Teaching Games for Understanding Approach

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ABSTRACT

In general, this research and development aim to produce a learning model for basic javelin throwing movements using the TGfU approach for elementary school students. Apart from that, this research and development was carried out to obtain in-depth information about competencies, characteristics and initial abilities of elementary school students in implementing physical education learning, especially on learning material for basic javelin throwing movements. The design for research and development of this learning model uses Sugiyono's research and development approach model. Meanwhile, the subjects in this research and development were all 30 grade VI students at Mamajang I State Elementary School and Baddoka Makassar State Elementary School. The instruments used in this research and development are questionnaires and questionnaires which are used to collect data at stages: (1) needs analysis; (2) expert evaluation (initial product evaluation); (3) limited trials (small group trials); and (4) main trial (field test). To test the effectiveness of the model, a javelin-throwing process test and a rubric for assessing the correctness of the javelin-throwing movement were used. To see the results of the effectiveness of the model, a statistical test was used using the repeated observation t-test formula with a significance level of $\alpha = 0.05$. Based on the development results, it can be concluded that: (1) Learning the basic javelin throwing movements through the TGfU approach using simple tools, namely the bombardier game for grade VI elementary school students is needed by Physical Education teachers; (2) overall this product is effectively implemented by Physical Education teachers in teaching basic javelin throwing movements to grade VI elementary school students; (3) Based on the results of the model effectiveness test, it has been empirically proven that the product results in the form of a learning model for basic javelin throwing movements for grade VI elementary school students have very good effectiveness.

Keywords: *Learning Model; Basic Javelin Throwing Movements; and TGfU Approach.*

INTRODUCTION

Teachers are required to be able to make the learning process active, creative and fun. This is sometimes difficult to realize because teachers do not have learning tools, are not responsible for their main tasks (Puspitasari, 2018), and have minimal knowledge in

terms of evaluating the student's faces and some have low qualifications (Putra et al., 2018). The results of initial interviews with physical education teachers (penjas) that generally only product-oriented, namely assessing student learning outcomes based on the final results after students make movements from the material studied (Asih, 2018), for example, how far the results of the throw or how fast to run to the finish. On the contrary, it is process-oriented, which assesses the process during the movement as in the javelin throw learning material which is assessed as the process of gripping, starting movements, arm and leg swing movements, and the final movement of the throw (continued).

In several elementary schools in Makassar City, when students take part in athletic learning javelin throw numbers are identified that most students are less interested and do not like this learning material because students are worried about javelins that are considered to endanger them, the learning atmosphere is boring and saturated, and the material presented has almost no playing characteristics. Even though for elementary school students, it is the age of play, according to Maksum (2017) at the age of 11-12 years is the most appropriate age for the development of the basic skills needed later. The characteristics of elementary school children who like to play, like to move, like to work in groups and like to feel or do something directly, make the right development model given, namely various learning of basic javelin throwing movements with games which of course the movements must support and relate to the basic techniques of javelin throwing (prefix, throwing stage, and final stage).

The results of interviews with Penjas teachers in other schools stated that with javelin-throwing learning materials that used lecture and demonstration methods, 65% were complete and 35% were incomplete. The percentage of graduation is far below the learning materials of games such as football and volleyball, 85% completeness and 15% incompleteness. From the needs analysis, most of the students in elementary school are relatively unhappy with learning athletic javelin throws. This data shows that it is necessary to develop the learning of the basic movements of javelin throwing with games, which can later be used as a solution to make it easier for students to learn the basic movements of javelin throwing more effectively and efficiently. In the learning process, play can provide a basic motion process.

The Teaching Games for Understanding (TGfU) approach is a game approach in learning using game models that aim to increase student participation in learning activities and student appreciation of the learning that has been delivered by the teacher (Qohhar & Pazriansyah, 2019). The focus of Teaching Games for Understanding (TGfU), developed

by Bunker and Thorpe (1982), is to place students or athletes in game situations where tactics flow in decision-making and problem-solving at the same time (Prananda & Hadiyanto, 2019). Terminology and variations of the TGfU approach where the game can be modified to fit it. Modifying and adapting the game is an important part of this approach. Research developed by Webb and Pearson (2006) previously focused on an integrated approach called teachers who can create units in sports activities and game categories.

Applying the learning of constructivism theory, the results showed that tactical understanding and decision-making can be improved with the TGfU approach in elementary school students Balakrishnan and Malathi (2011). The TGfU approach can increase student interaction, especially in solving a problem in the physical education learning process (McMath and Christopher Robert Jame, 2010)

According to Hidayat (2021), a teacher needs to have an understanding of categories and can create innovative work units in learning by using use the TGfU game model as well as including other curriculum models such as Creating and Designing Games (CDG) and Sports Education. This approach requires an active teacher to gain an understanding of the game. Webb and Pearson (2006) determine what makes effective in this activity based on strategies or tactics, skills, rules and psychological factors.

Learning can cause changes in students. Changes that occur result from experience or repeated actions, meaning not because of the process of growth, maturity, and conditional factors in individual students (Dosinaen et al., 2020). Yusakarim, (2011) shows that sports have been presented in a new format by utilizing equipment that is in schools and that is easily available in the market, sports are shown to be a fun physical activity with a variety of sports and games that involve students with different skill levels and make students more the centre of the activity (Burhanuddin et al., 2022). Sports are presented concerning the pleasure of moving without having to feel forced and afraid. Hidayatullah (2013) argues that children should not be forced to play sports. Sports should be packaged into fun activities that can build skills, knowledge of the game, friendships and entertainment.

The play model is a way of delivering learning materials by providing various forms of play. TGfU learning in the form of play models is often referred to as tactical model learning. (Tarigan, 2001) suggests that "teaching through a tactical approach is to improve students' play skills, by involving a combination of tactical awareness and the application of basic technical skills into actual form". Thus, the TGfU (tactical approach) play model can improve students' skills, by involving a combination of tactical awareness and the application of basic technical skills into actual form.

TGfUn's approach to learning javelin throwing emphasizes aspects of how to teach students to understand the concept of play. For example, students should be taught the concept of playing and the basics of javelin throwing, not how to teach javelin throwing as far as possible which is difficult for students to do and achieve. The TGfU approach can be done with a bombardier play model, which is expected to increase students' motivation and interest and will increase their ability to perform javelin throwing movements. According to Sofyan (2015) "according to the age of school in elementary school, of course, the nature of learning is through an approach, namely play". Furthermore, Sofyan (2015) stated that "The world of children is closer to the game situation than the serious, in learning there are many variations so as not to get bored easily because students often also get bored quickly carrying out activities".

The play model was chosen because it is based on the basic assumption that humans like to play. Play activities themselves are an activity that is liked by both children and adults. According to Nugroho (2021) for children (including elementary school students) playing is a very important need in their lives, it can even be said that of all their time spent playing. Play activities in children are mostly done with movement activities, therefore play is very meaningful for children to train themselves and is an absolute requirement to stimulate children's growth and development.

Given that playing is an activity that is carried out repeatedly and causes pleasure/satisfaction for oneself (Sujiono and Sujiono, 2010). Parten (in Sujiono and Sujiono, 2010) views play activities as a means of socialization where it is hoped that play can give children agreement to explore, discover, express feelings, create, and learn in a fun way. In addition, play activities can help children get to know about themselves, who they live with, and the environment in which they live.

The learning model associated with javelin throwing through the TGfU approach is a bombardier game. Bombardier is synonymous with the verb throw (Syahrudin, 2020). This game is done by throwing various kinds of objects including gym balls, cardboard, or hoops placed on the field or hung and carried out individually or in groups.

METHOD

This type of research is development research (*Research & Development*). The Development Research Model used is the Sugiyono Development Model with the following model steps, namely (1) Potential and problems, (2) Data Collection, (3) Product

Design, (4) Design validation, (5) Design Revision, (6) Product trials, (7) Product revisions, (8) Usage trials, (9) Product Revisions, (10) Massar Production (Tatang, Yunidar, and Syahrudin, 2016)

This research resulted in a learning package of basic javelin-throwing movements through the TGfU approach. Target clients *are* grade VI students at SD Inpres Bertingkat Mamajang I and students of SD Negeri Baddoka Makassar.

The stage of learning model development, target determination in this case teachers, learning experts and students who assess the learning model that has been developed based on the following criteria: (1) evaluators who carry out *expert judgment* are determined based on their expertise; and (2) the evaluator who carries out the evaluation is determined based on the ability of the practitioner he has been engaged in, in this case is a physical education teacher in the school to be used in research and development.

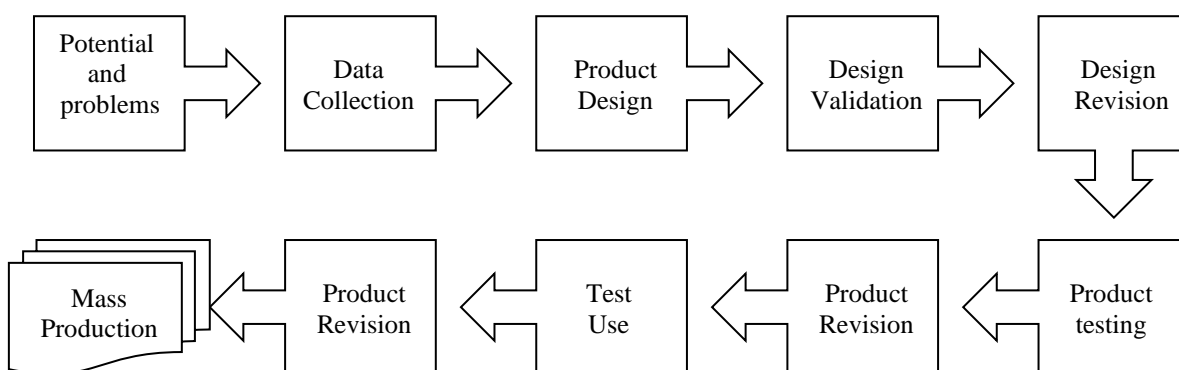


Figure 1.
Research Design

To find a way out of this research and development problem, a learning model for basic javelin throwing will be prepared through the TGfU approach. In connection with that, the product that is planned to be compiled and developed is a learning model of basic javelin throwing movements through the TGfU approach consisting of five models. The model to be developed will go through bombardier games as a learning medium, with equipment that is easily available and relatively cheap including rattan sticks, cardboard, tennis balls, gym balls, hula-hoop and raffia rope.

Data analysis in this research and development uses quantitative descriptive analysis. The collected data is analyzed with descriptive statistical techniques that are quantitatively separated by category to sharpen the assessment which is then used to conclude. Data analysis is carried out on expert reviews as a result of *expert judgment*, besides that qualitative data in the form of input and suggestions are also grouped and analyzed whose results are used for product development revisions.

At the development stage, several analytical approaches are used, namely: (a) the implementation and results of model design development are described in the form of data presentation, then analyzed qualitatively; (b) in limited trials, the results of trials of applying model design are analyzed with a quantitative approach; (c) In wider trials, in addition to using a qualitative descriptive analysis approach, statistical (quantitative) analysis techniques are also carried out, with a T-test statistical formula model (*t-test*) to measure the results of applying the model design under conditions before and after application.

RESULTS AND DISCUSSION

Result

Needs Analysis

Researchers conducted a preliminary study with surveys and interviews with several Penjaskesrek teachers about how important the learning model that the researcher will develop. The results of the preliminary study are revealed in the Table below.

Table 1.
Results of Needs Analysis and Field Findings

No	Question Item	Findings
1	What does the teacher teach in javelin throwing lessons for elementary school students?	Penjaskesrek teachers teach several kinds of throwing styles, but not optimal variations.
2	Is javelin throwing material always given every year?	Javelin throwing material is taught to elementary school students, quite suitably developed by each school.
3	Are there javelin-throwing learning facilities in schools?	The facilities used are in the form of school yards and sports fields around the school.
4	Has the javelin throw learning model application ever been done?	The application of the javelin throwing learning model is carried out but only limited to modifying javelin equipment made of bamboo slats.
5	What is the attitude of students in learning to throw javelins?	The attitude of students is less enthusiastic in learning javelin throwing.
6	What efforts do teachers make to get students interested in the learning process?	Teachers include an element of competition in the learning process.
7	Is there a need for a javelin-throwing learning model through the game?	Teachers need a variety of learning models by incorporating elements of games and movements relevant to javelin throwing.

First Draft Model

There are five first draft models offered, among others, Cardboard throwing games with tennis balls (model 1), Gym ball throwing games with tennis balls (model 2), Gym

ball throwing games facing tennis balls (model 3), Hanging hula hop throwing games with tennis balls (model 4), and Hanging hula hop throwing games with rattan sticks (model 5)

Final Model

After being declared valid and undergoing revision phase II, a javelin throwing learning model was obtained with games that have been finalized, including Cardboard Throwing Games with Tennis Balls with the Right Hand (Model 1), Cardboard Throwing Games with Tennis Balls with Left Hands (Model 2), Gym Ball Throwing Games with Tennis Balls with Right Hands (Model 3), Gym Ball Throwing Games with Tennis Balls with Left Hands (Model 4), Gym ball throwing game facing tennis ball (model 5), hula hop throwing game hanging with tennis ball (model 6), and hula hoop throwing game hanging with rattan stick (model 7)

Model Effectiveness

Phase I testing, the javelin throwing game model made by researchers after being evaluated by experts (physical education teachers, athletic trainers and physical education experts), then underwent stage I revision.

Based on the evaluation of small group trials conducted by several experts, it can be stated that a) The use of simple tools, namely tennis balls and rattan sticks, is good but should be made even more interesting, b) The model used is suitable for elementary school students in learning javelin throwing, c) The level of safety of using tools is good and feasible, d) Systematics of model development from the introduction, The core, and cover, used in the development of javelin throwing models through bombardier games for elementary school students are quite good, and need to be equipped with lesson plans, e) The preparation of models is well arranged, from easy to more difficult levels, and f) The preparation of javelin throwing learning models through bombardier games for elementary school students is felt to be effective in helping PE teachers in achieving learning objectives.

After the model was revised, it continued to be tested on a small group of 10 students. The assessment of the javelin throwing learning model with the game obtained an average number of data = 249. Thus the effectiveness of the learning model as a whole = $249 : 330 = 0.755$ or 75.5% of the expected criteria. With the testing of the learning model product, this testing step is declared complete.

Second stage. After the results of the development of javelin throwing learning products with games for students of SD Negeri BerLevel Mamajang I was tested on a small

scale and revised, continued with large group trials (*field tryout*). The results of the model effectiveness test on 30 students of SD Negeri Baddoka were given treatment of javelin throwing learning models through bombardier games. Treatment is given for 4 meetings with 3 to 4 models in each meeting. The test used is a test of the javelin throwing process process based on the rubric of assessing the correctness of the initial movement, throwing stage and advanced stage by scoring the movements made at the time of throwing. The results of the model effectiveness test with the javelin throwing correctness assessment test can be seen in Table 2.

Based on Table 2, it is known that the average value of the initial test was 14.70, the standard deviation was 1,466, the minimum data was 12, the maximum data was 18, and the total value was 441 from a total of 30 samples. While the average value of the final test was 20.67, the standard deviation was 1,422, the minimum data was 19, the maximum data was 23, and the total value was 620 from a total of 30 samples

Table 2.
Description of Initial Test Data and Final Test of Javelin Throw Assessment Process

Statistics	Initial Test	Final test
N	30	30
Mean	14.70	20.67
Std. Dev	1.466	1.422
Variance	2.148	2.023
Min	12	19
Max	18	23
Sum	441	620

Related to Table 2 data, paired t-test analysis was carried out to determine the effectiveness of the model with the correct process of javelin throwing motion and obtained a calculated t value of 35,222 (sig = 0.000 < α 0.05) or the null hypothesis was rejected. Thus there is a significant difference between the initial test and the final test of the javelin throwing learning model with bombardier games to improve javelin throwing ability in elementary school students.

Based on the results of *small group* trials (small tryouts) and large group trials (*field out*) it can be concluded that the development of javelin-throwing learning models through bombardier games is effectively given to elementary school students.

Although the results of the second stage of the javelin throw development model through bombardier games are very effective, however, this learning model still needs to be perfected, including the need for a more detailed explanation and pictures of its implementation in the classroom before this material is taught in the field so that the

effectiveness of learning time is not wasted much, for schools that have limited facilities and infrastructure need to adjust, The use of a tennis ball is considered light so that advanced movements centred on the togek are less involved so that the end of the movement is only on the shoulder.

Discussion

The product developed aims to improve the physical education learning objectives of javelin throwing material for elementary school students. This model is designed based on the characteristics of children's needs for movement activities, psychologically children aged 11-12 years prefer playing activities, so in this model, the application is carried out using the principle of play and students are enthusiastic about doing it. According to Hidayatullah (2013), in grades 5 and 6 (aged 11 - 12 years), in terms of physiological characteristics, active games are preferred, for both boys and girls. The active game referred to here is a form of game of throwing or dropping an object onto a target and in its implementation, there is an element of competition or competition.

The results of the second phase of testing using this model turned out to produce a significant increase ($p < 0.05$), meaning that this model is very effective in meeting the needs of javelin throwing learning. The research subjects were schools that had inadequate sports infrastructure. So when this model is applied to schools that have adequate infrastructure, it will have an even wider impact. Apart from that, the advantages of the javelin throwing learning model through the bombardier game are that it gives students freedom to move, the equipment used does not need to be standard (it can be adapted to the condition of existing facilities at the school and can be modified), the description of the material presented ranges from easy to difficult, and the tone elements of competence in it.

The solution to learning physical education in javelin throwing numbers can be done with various game models, including cardboard throwing games with tennis balls and others. These game models provide opportunities for students to move while playing by involving all parts of the student's body by modifying the game so that it can be optimally used by elementary school students in learning. The various modifications made include simple movements but activating all arms (superior extremities); both the extra and sinister parts. This means that students activate the superior extremities by following the nature of muscle movements, both agonist, antagonist, horizontal and stabilizer. In the end, game models will also bring students to work together with group friends, and can improve physical fitness. This is the same thing as stated by Mutohir (Sridadi, 2009) that the benefits

obtained from playing activities are getting rid of extra energy (surplus energy); optimising the growth of bones, muscles and organs; increasing the child's appetite; children learn to control themselves; development of various skills; increase creative power; find the meaning of the objects around him; overcome anger, self-worry, jealousy and position; socializing with other children; the opportunity to be the loser or winner; learn to follow the rules; and develop intellectual abilities.

In line with the above, when students carry out the physical education learning model, the movements carried out can involve all parts of the joints (articulation) so that various movements can occur such as flexion, extension, hyperflexion, hyperextension, abduction, adduction, rotation and others. -other. When performing all these movements, the main target is to activate all muscle properties so that coordination of movements occurs. With good coordination, both agonist and antagonist muscles have a good kinesthesia mechanism.

The results of Muttaqin's research (2013) stated that "providing a play approach can improve floor exercise learning which is not yet optimal and can improve the front roll floor exercise skills of class V SDLB C students." Playing activities carried out happily will influence hormones and stimulate growth (Fidi Astuti, 2021). From a physiological aspect, playing will give you a feeling of joy. This is because the brain stimulates the master gland (pituitary gland) to secrete endorphins, which are chemical compounds that make a person feel happy and improve the body's immunity. Endorphin hormones are produced by our body in the pituitary gland, namely when we feel happy (laughing) and also when we get enough rest. This hormone acts like morphine, where its influence on a person's body is 200 times greater than morphine.

CONCLUSIONS

Learning to throw the javelin through the bombardier game is needed by Physical Education teachers. In general, teachers need a variety of varied learning models for javelin throwing, especially those using simple equipment. This is due to the dependence of Physical Education teachers on standard facilities and learning approaches in presenting basic and standard techniques following the established curriculum, resulting in learning patterns that are less varied and tend to bore students.

Overall, this product is effectively implemented by Physical Education teachers in teaching students the basic javelin throwing movements. Referring to the discussion of the

results of the product trial analysis, in terms of the existence of the product (level of urgency, usefulness and practicality) and the level of efficiency (time, energy and cost), as well as the level of clarity, this product is the right solution to the problems faced by Physical Education teachers in teaching the basic movements of the javelin throw.

The results of the model effectiveness test, it is empirically prove that the product results in the form of a model for learning basic javelin throwing movements for elementary school students have very good effectiveness, or a model for learning basic javelin throwing movements through the bombardier game is effective for improving the process of correcting basic javelin throwing movements without prefix ($p < \alpha 0.05$).

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