

Development of Hanging Style Long Jump Play Activities Based on the CFU-PM515 Concept for Elementary Schools

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Abstract

Introduction: Physical education has many skills to learn, one of which is the long jump skill. The long jump is a branch of athletics learning which is generally less attractive to students, facts on the ground explain that students are not happy with athletics lessons, and students are not serious about taking part in lessons.

Aim: This study aims to develop play activities in physical education learning long jump hanging style based on the CGFU-PM515 concept for elementary school students. The implementation of this activity is made in a circuit so that it can be played individually or in groups in an interesting and fun way.

Method: This development research applies the 4D development model by Thiagarajan with the following steps: (1) Define, (2) Design, (3) Develop, and (4) Disseminate. The developed play activities consist of four types of activities based on their benefits in learning the long jump long jump style, in addition to making it easier to recognize the playing activities being developed, the researcher innovates by giving the name of the letter in each type of activity as follows: "A" for the type of prefix activity, "R" for the type of repulsion activity, "G" for the type of hovering activity, and "O" for the type of landing activity. So that this playing activity can also be called the name "ARGO" playing activity.

Result: The data obtained from this research is in the form of quantitative data, from the data then tested the validity and practicality tests. Test the validity of the products developed by looking at the suitability of several aspects including: (1) Compatibility with basic competencies gets a high validity level with a score of 0.97, (2) The accuracy of the material gets a high validity level with a score of 0.9, (3) Encouraging curiosity has a moderate level of validity with a score of 0.77. Then for the practicality test the results were 96% and based on the criteria for giving a practicality value the results were stated to be very practical.

Conclusion: So it can be concluded that the play activities developed are very interesting, in accordance with learning objectives, and effective for elementary school students.

Keywords: *Play, Long Jump, CGFU-PM515, Elementary School*

Розробка ігрових занять зі стрибків у довжину, на основі концепції CFU-PM515 для початкових шкіл Мухаммад Вахю Арга, Сісвантойо, Юданто, Відха Сріанто, Ююн Фаріда, Сусанто

Фізичне виховання вимагає вивчення безлічі навичок, однією з яких є навичка стрибка в довжину. Стрибки в довжину - це розділ навчання легкої атлетики, який, як правило, менш привабливий для учнів. Попередні дослідження показують, що учні незадоволені уроками легкої атлетики та несерйозно ставляться до участі в уроках.

Мета: розробка ігрових занять з фізичного виховання під час навчання стрибкам у довжину на основі концепції CGFU-PM515 для учнів початкової школи. Реалізація цього заняття проводиться за схемою, щоб у нього можна було грати індивідуально або у групах цікаво та весело.

Матеріали і методи: у цьому дослідженні застосовується 4D-модель Тіагараяна, що складається з наступних етапів: 1) визначити; 2) спроектувати; 3) розробити; та 4) поширити. Розроблена ігрова діяльність складається з чотирьох видів діяльності, виходячи з їхньої користі при освоєнні стрибків у довжину. Крім полегшення розпізнавання ігрових дій, що розробляються, автори вносять новаторство, називаючи букву в кожному вигляді активності наступним чином: «А» для типу префіксної активності, «Р» для типу активності відштовхування, «Г» для типу активності польоту і «О» для типу активності приземлення. Отже, цю ігрову діяльність можна також назвати ігровою діяльністю «АРГО».

Результати: дані, отримані в результаті дослідження, представлені у вигляді кількісних даних, на основі даних, які потім були перевірені на достовірність і практичність. Перевірено валідність розроблених продуктів, перевірено придатність кількох аспектів, включаючи: 1) сумісність з базовими компетенціями - отримано високий рівень достовірності з оцінкою 0,97; 2) точність матеріалу - отримано високий рівень достовірності з оцінкою 0,9; 3) заохочення цікавості - має помірний рівень достовірності з оцінкою 0,77. Тоді для тесту на практичність результати становили 96%, і на основі критеріїв оцінки практичності результати були визнані дуже практичними.

Висновки: таким чином, можна дійти висновку, що розроблена ігрова діяльність дуже цікава, відповідає цілям навчання та ефективна для учнів молодших класів.

Ключові слова: гра, стрибки у довжину, CGFU-PM515, початкова школа.

1. Introduction

Physical education learning at the primary school level is one of the many lessons taught at school. Physical Education is an integral part of education where students are the main object [1]. One branch of the athletic sport of long jump at this time is still less interesting for most students, because they think the activity is boring [2]. The students argue that the squatting style long jump still looks less attractive [3]. Basically, the physical education learning process aims to develop three domains, namely cognitive, affective, and psychomotor aspects. These three domains complement each other in realizing the whole human person, through these three domains students are not only directed to know, understand, and be able to practice a certain concept or skill in learning but also directed to be able to think critically and creatively about a concept they have just encountered.

Researchers try to apply a new concept called Coaching Game for Upgrading Performance Model 515 (CGFU-PM515). A study has succeeded in developing the concept of multilateral coaching with a play approach to improve performance, soft skills, and skills, the concept of coaching is called CGFU-PM515 [4]. The CGFU-PM515 concept explicitly applies a 21st century education approach, namely education and learning with a touch of innovation, technology and creativity. Therefore learning physical education can be understood as a subject that does not only prioritize motor skills but also relates to other aspects of ability. The purpose of physical education in schools is not to make students become athletes but aims to develop their potential through various physical activities [5]. Physical education has been shown to be effective in increasing knowledge, attitudes and physical skills, this can support a person in determining his future direction [6].

The application of the play approach in the CGFU-PM515 concept can be seen in the sequence pattern of learning or training with the CGFU-PM515 concept, namely (1) Innovation Games, (2) Natural Games Action, (3) Coaching Approach, and (4) Assessment. Playing is the right way to learn, by playing students learn about the emotional, social, physical, and cognitive around them. The role of games in education continues to grow, games are a tool to convey various subject concepts to students, because through games it becomes easier for children to understand a concept being taught [7]. Integration of game-based learning with technology has been common and contributes to several literatures that promote the use of game-based learning techniques [7]. The learning model with an effective and efficient game approach is given to elementary school students [9]. So based on the CGFU-PM515 concept, in the first stage the researcher will make various kinds of play activities that are relevant to the goals to be achieved. Then in the next stage the researcher will validate the various activities developed.

The development of play activities must be in accordance with the material that is the focus of a lesson, in this case the focus is on material regarding long jump learning in the hanging style. Development or innovation in education in this modern era is required to ensure student-centered learning [10]. The choice of long jump material was due to problems in the long jump learning process, Inadequate infrastructure is a problem in mastering the basic skills of the long jump [11]. This is one of the bases for researchers in conducting this research, because in this study the results of the activities developed can be carried out with equipment that is easy to obtain but still safe. In addition, long jump learning using a play approach has been shown to be effective for improving long jump skills, so

researchers intend to provide a variety of other forms of games to improve long jump skills [12]. Before making play activities, researchers analyzed the stages of implementing long jump movements which based on the International Association of Athletics Federations (IAAF), the long jump stages are divided into 4 stages, namely (1) Approach, (2) Take Off, (3) Flight, and (4) Landing. Although it is known that in 2015 the IAAF has developed an athletic training model for children called "children athletics", because in reality there are still many teachers who do not know this, so another alternative is needed, namely by developing play activities to support long jump activities. Based on this background, researchers want to try to develop several play activities that will be applied during physical education learning in elementary schools, especially long jump learning.

2. Materials and Methods

2.1 Research Design

The research design used is research and development (RnD) or development research. Research and development serves to validate and develop products according to research needs (Sugiyono 2013)[13]. The research procedure used is the theory of Thiagarajan 1974 the steps of 4D research and development namely define, design, development, and dissemination. This method and model was chosen because it aims to produce products in the form of long jump learning activities in physical education based on the CGFU-PM 515 concept. After going through the four stages of the 4D research method (Define, Design, Develop, Disseminate), the developed product was then tested for feasibility with a validity test based on Aiken's Expert Score Rater Validation formula and also tested for practicality with a practicality test. The practicality test is that the ARGO activity model that has been developed is practised directly on elementary school students.

2.2 Procedures

This development stage developed several learning activities in the form of games packaged in one game unit called "ARGO". This naming functioned to divide the activity into posts where in each post there was a form of activity that had been developed according to important movements in the long jump, these stages included Post "A" Approach, Post "R" Take Off, Post "G" Flight, Post "O" Landing. Then after developing learning activities in the form of games based on the CGFU-PM515 concept, researchers conducted expert validation tests. During physical education learning, teachers should use as many forms of play as possible, this will have a positive effect on the attractiveness of the learning process [9]. Specifically, this play activity will be more effectively applied to students at the elementary school level, because in essence elementary school children tend to be more active if directed to play. This play activity can be implemented within 1 hour of learning in elementary school, which is 35 minutes. In addition, researchers also tested the practicality of the activities developed. ARGO is an interesting type of play activity to be implemented, because there are differences in the way the activities are carried out and the grouping of types of activities based on function, in this case according to the long jump technique. Evaluation that can be done by teachers is by conducting tests based on the elements of assessment in physical education, namely cognitive, affective, and psychomotor tests. The types of activities developed and their benefits are presented in Table 1 below:

2.3 Statistical Analysis

After going through several stages of the 4D research method, the product developed is then tested for its feasibility

Table 1. "ARGO" Playing Activities

Pos	Type of Activity Play	Benefits Activity
A	Move the ball in a way resembling the letter «A», from the starting point to the ball basket provided	Provide motion experience regarding the approach stages in the long jump movement, namely the movement of running as fast as possible.
R	Jump forward in an «R» shape with the strongest fulcrum	Provides motion experience regarding the take off stages in the long jump movement, namely jumping with the strongest foot support
G	Jump forward in a «G» shape and stretch both arms up as your body flies through the air.	Provides motion experience regarding the flight stages in the long jump hanging style, namely the position of the body soaring in the air and stretching both arms up.
O	Jump forward in an «O» shape and stretch your arms forward as you jump.	Provides motion experience regarding the landing stages in the long jump movement, namely the position of the body following the direction of gravity by bending both legs and arms positioned forward.

Table 2. Validity Test

Assesment Aspects	Expert										Σs	V	Validation State	
	1	2	3	4	5	6	7	8	9	10				
Compatibility with basic competences	4	4	4	4	4	4	4	4	4	4	4	4		
Material Accuracy	4	3	4	4	3	3	4	4	4	4	4	4		
Encourage Curiosity	3	4	3	4	3	4	3	3	2	4	4	4		

Assesment Aspects	Respondents										Σs	V	Validation State
	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10			
Compatibility with basic competencies	3	3	3	3	3	3	3	3	3	3	29	0,97	Tall
Material Accuracy	3	2	3	3	2	2	3	3	3	3	27	0,9	Tall
Encourage Curiosity	2	3	2	3	2	3	2	2	1	3	23	0,77	Currently

Table 3. Practicalty Test

QUESTION	ANSWER CHOICES WEIGHT SCORE				ANSWER CHOICES WEIGHT SCORE				WEIGHT
	SS	S	KS	TS	4	3	2	1	
Are the play activities being developed easy to do?	10				40				40
Does the developed play activity make the child happy?	8	2			32	6			38
Are the playing activities developed easy to understand?	8	2			32	6			38
Can the developed play activities be beneficial for children in learning to hang-style long jump?	8	2			32	6			38

ity with a validity test based on the Aiken Rater Score Expert Validation formula. Aiken V (content validity coefficient) which is based on the results of an expert panel's assessment of n people on an item regarding the extent to which the item represents the construct to be measured. The range of possible V numbers is between 0 and 1.00. In addition, the practicality of the product being developed was also tested with a practicality test. The practicality analysis was based on the teacher's response questionnaire during the learning process.

3. Result

This research aims to develop a product, which in this case the resulting product is in the form of play activities for the hanging style long jump skill. The data obtained in this study are the results of validity and practicality tests of the products

being developed. The results obtained from the validity test and practicality test will be presented in table 2 below:

Based on table 2 above, a validation test has been carried out on material experts using the Aiken-V formula. There are 10 experts involved in this validation, each expert assesses the three aspects related to the material in playing activities developed using a Likert scale of 1-4. Then the researcher conducted data analysis to determine whether the three aspects of the activity developed had a high or medium or low level of validity. So it can be concluded that the material aspects regarding suitability with basic competencies have a high level of validity with a score of 0.97, then the material aspects regarding the accuracy of the material have a high level of validity with a score of 0.9, while the material aspects regarding encouraging curiosity have a moderate level of validity. with a score of

0.77. Then a practicality test was carried out, the results of the practicality test are shown in Tables 3 and 4 below:

$$\begin{aligned} \text{Average weight score} &= \sum x : n \\ &= 40+38+38+38 : 4 \\ &= 38,5 \\ \text{Interpretation of calculation scores} \\ \text{Maximum Value (Y)} &= \text{Highest Likert Value} \times \text{Amount Respondents (S)} \\ \text{Minimum Value (X)} &= \text{Lowest Likert Value} \times \text{Amount Respondents (S)} \\ \text{Index formula (\%)} &= \text{Total score: } Y \times 100 \\ \text{Index (\%)} &= 38,5 : 40 \times 100 \\ &= 96\% \end{aligned}$$

Table. 4 Criteria for Giving Practical Values

Practicality Value % Reliability Criteria	Practicality Value % Reliability Criteria
86-100	Very Practical
76-85	Practical
60-75	Pretty Practical
55-59	Less Practical
<54	Impractical

Source: [14]

Based on the practicality value obtained, namely 96%, it can be concluded that the playing activities developed are within very practical criteria. This proves that the activities developed can be used in physical education learning in elementary schools because they contain elements that are easy to implement, fun, easy to understand, and useful for the material being studied, in this case the long jump style hanging skill.

4. Discussion

The implementation of the CGFU-PM 515 concept is carried out by carrying out the stages in the learning sequence of the concept, the sequence can be seen from the following figure:



Figure 1. CGFU-PM 515 (Siswanto, et al. 2020)

It is known that in the picture above it is shown that there are four stages, which in this study focused on the first stage, namely the stages of game innovation. Based on the concepts contained in the CGFU-PM515 it is explained that at this game innovation stage the trainer or teacher prepares and makes various kinds of games by considering the important points of the material being studied, the media, and the equipment needed [4]. Therefore the researcher made several types of activities according to the critical points in long jump skills, where the critical points in long jump skills are as follows; (1) Prefix, (2)

Repulsion, (3) Hover, and (4) Landing. The four critical points are then given names to make it easier to distinguish the types of activities. The first play activity is given the name "A", then the second play activity is given the name "R", the third play activity is "G", and the fourth play activity is given the name "O". If the names of these four activities are combined, they are called "ARGO" playing activities. So it can be said that "ARGO" is the name of a play activity to improve long jump skills in hanging style for elementary school students.

Then all these playing activities were analyzed by conducting data analysis related to the validity test by material experts and practicality tests. It was found in the expert validity test that several things were considered in the material test, namely (1) The suitability of the form of play activities developed with basic competencies, (2) The accuracy of the play activity material developed with the skills that are the learning objectives, (3) The play activities that are made can foster students' curiosity when learning takes place [14]. Paying attention to suitability for goals in using this game-based method will be beneficial in creating positive student experiences in achieving learning goals and increasing student engagement [15]. Playing in learning for fun and learning is a natural behavior for humans, so it is hoped that learning with this game can foster a willingness to study harder for students [16].

Based on the results obtained from the validity test by material experts it was found that the three aspects considered in the material test contained in play activities were as follows: (1) Regarding the suitability of the product being developed with the required competencies, a score of 0.97 was obtained with an interpretation of the validity score is high, (2) Regarding the accuracy of the material developed with the aim of learning to get a score of 0.9 with an interpretation of the validity score is high, and (3) Regarding the product developed has benefits for students' curiosity get a score of 0.77 with an interpretation of the validity score is medium. As for the results of the practicality test, a score of 96% was obtained, this score, when viewed based on the practicality criteria table, indicates that the product developed has a practical level of "very practical", this finding is in line with research on educational gamification, where the achievement of learning objectives is supported by exercises that demand the application of theory in practice [17,18,19]. The elements used in identifying the level of practicality of the product being developed are ease of implementation, fun, easy to understand, and useful for the goals to be achieved. The product developed is a play activity.

Proper game design can play an important role in facilitating learning [20]. The reason for researchers in developing play activities is because long jump learning is less attractive to students in elementary schools, long jump learning which is also part of athletic sports often makes students feel bored when learning takes place. Therefore, researchers try to present a solution through the development of play activities based on the concept of CGFU-PM515. This is considered to be very much in line with the current education program, which is about learning that raises higher order thinking skills (HOTS). The importance of implementing HOTS in learning follows the low ranking of the Program for International Student Assessment (PISA) and Trends in International Mathematics and Science Study (TIMSS) compared to other countries, so that the standard of national exam questions is being sought to be improved to catch up [21]. The results of TIMSS in 2015, Indonesia received an average score of 397 and ranked 4th from the bottom of 43 TIMSS participating countries. Meanwhile for PISA in 2015, Indonesia got an average score of 403 for science

ranked 3rd from the bottom, 397 for reading ranked last, and 386 for math ranked 2nd from the bottom out of 72 countries [22].

5. Conclusion

The final product of this development research is a number of play activities based on the CGFU-PM515 concept to improve the long jump style hanging skills of elementary school students. Furthermore, through this series of studies, researchers created a model of playing activity that is different from playing activities in general, which model is called "ARGO" play activity [23]. "ARGO" is the name of the researcher, besides aiming to make it a characteristic, the meaning of the name also has the goal of making the learning process run more effectively. The game is a tool that is easy to use, effective, and useful for meeting the needs of students [24]. According to previous research, educational games positively influence decision-making performance [25]. Basically this activity model can be done by making four posts, each post has a form of play activity that must be carried out by students, each post also has

a goal in order to improve the skills of the long jump hanging style, besides that each post is also named with the name of the letter as follows; "A" for the first post, "R" for the second post, "G" for the third post, and "O" for the fourth post. So that it can be recognized that the series of activities is an activity called "ARGO" play activities that are interesting, in accordance with learning objectives, and can be done together, by learning together it can increase student motivation in participating in physical education learning [26]. In addition, it also requires sufficient speed to jump in order to produce competitive results [27].

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