Thematic Based Video Games in Physical Education

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Abstract. Learning video is one of the learning media that uses audio-visual which contains concepts, principles, procedures, theories and examples to help students understand the content of learning materials. The use of video can help students understand the movement more easily because it can be stopped and repeated as needed. The purpose of this study was to develop video of games in physical education learning for grade 1 elementary school students. This study uses research and development (R&D) using the ADDIE model, but in this study only the analyze, design and development stages. The results of the study are in the form of learning videos that have been validated by 4 experts. The validation results show that media experts get a score of 98% in the very good category, 78% in design experts in the good category, 93.25% in content/material experts in the very good category, and field practitioners in 94% in the good category. Based on these results, it can be concluded that the learning video developed is feasible to be used for further product testing.

Keywords: video · games · physical education

1 Introduction

Physical Education (PE) is education that uses physical activity in learning that aims to develop physical fitness, critical thinking, movement skills, social skills [1], develop sports values, instill a healthy lifestyle [2] so it can be used in everyday life[3]. As an integral part of education, PE is a compulsory subject in primary and secondary schools. Physical education in elementary school is needed because it is identical to play which is the child's world, related to health, related to achievement in other subjects at school, and related to social development [4]. Physical education can meet children's needs for movement, introduce children to the environment and their potential, instill useful basic skills, channel excess energy, and simultaneously process education both physically, mentally and emotionally [5]. PE learning is carried out using various approaches, models, strategies, methods and techniques that are in accordance with the characteristics of students, movement tasks and learning environments.

Characteristics of elementary school children are at the concrete operational stage where children are able to think rationally to solve concrete problems. Children have a tendency to learn through things that can be seen, heard, and touched (concrete);

view something that is learned as a whole (integrative) and has not been able to sort out concepts from various disciplines; and learn from simple things to more complex things [6]. Children enjoy playing activities and physical education can be a means of playing for children. Playing is an activity that someone does to get pleasure. Play is an absolute part of a child's life, while the game is an integral part of the process of forming a child's personality [7]. Through play allows children to channel physical energy and release emotions, helps personality and emotional development and can learn about obeying rules and respecting the rights of others [8]. Not all games are useful and educational because there are also many games that have no benefits and can even harm the development of children, so teachers need to design the types of games that will be played by children.

The task of movement in physical education learning is adjusted to the stages of child development. For elementary school age, movement tasks are in the form of various basic movement pattern activities, movement skill development activities, physical fitness development, and healthy living behavior in daily life [9]. Meanwhile, viewed from the learning environment, currently learning must be adapted to 21st century learning. 21st century learning is a challenge for physical education teachers where digital technology dominates so that children tend to be lazy to move which then results in obesity or degenerative diseases [10]. This is a challenge as well as an opportunity to make the PE learning process easier and more enjoyable by teachers. Educators are required to be able to integrate information technology into the learning process, one of which is to use learning media that utilizes information technology. Learning media is one of the teaching aids for teachers to deliver teaching materials, increase student creativity and increase student attention in the learning process [11]. Through learning media, it can make the learning process more effective and efficient and play a role in overcoming boredom in learning. Therefore, teachers are required to motivate students through the use of media that is not only in the classroom, but also outside the classroom.

Based on the results of interviews with PE teachers in elementary schools in Buleleng District, information was obtained that the implementation of PE learning in schools only refers to teacher books and student books. In the lower class (grades 1–3) learning already uses a play approach that focuses on movement skills, but there is no integrated learning oriented. While the media used is still limited to picture media in books, some teachers have used video media taken from the internet. Based on this, it is deemed necessary to develop video games in PE learning that are oriented towards integrated learning. Learning videos are media that provide audio and visuals that contain good learning messages that contain concepts, principles, procedures, application theories to help understand a learning material [12]. Video is a show that contains a combination of moving images and sound. Characteristics of PE learning that prioritizes motion in the learning process is very appropriate when using video as a learning media. Through learning videos, students can find out about how to do the right movements and the stages. This is in accordance with the advantages of learning videos, namely they can provide messages that can be received evenly by students, videos are very good for explaining the process, can overcome the limitations of space and time, are more realistic and can be repeated or stopped as needed and give a deep impression in the learning process. Affect students' attitudes[13]. Video learning is reliable in the field of study that learns

motor skills and trains activity skills [14]. PE learning emphasizes motion as a learning activity so that in delivering the material it is necessary to provide examples of repetitive movements. Through learning videos, students can see carefully and repeat as needed. Several research results show that the use of video as a learning medium can increase interest [15], motivation [16]and student learning outcomes [17]. Based on this, this study aims to develop video games in physical education that are oriented towards integrated learning.

2   Method

This study uses the type of Research and Development (R&D). R&D is research that is used to produce certain products, and test the effectiveness of these products [18]. In this study, the product developed in the form of a video game in physical education learning for grade 1 elementary school students. This study uses the ADDIE development model which consists of analyze, design, development, implementation, and evaluation stages [19]. However, in this study it was limited to the development stage due to time and cost limitations. At this stage, a product validation test is carried out to determine the feasibility of the product being developed. The purpose of the test is to ensure that the video game content developed is able to handle the described needs. The product validation test was carried out by 4 experts including material experts, media experts, design experts and field practitioners who have expertise in their respective fields.

Data collection in this study used interview techniques to obtain information related to learning materials and learning resources on learning devices used by teachers, questionnaires to find out responses from experts about the products developed, and documentation to document all research activities. The data analysis technique used in this study is a descriptive analysis technique in the form of a percentage. While the data in the form of suggestions and input for model improvement will be analyzed using qualitative analysis techniques. In processing quantitative data in the form of percentages obtained by using the formula:

$$\text{Percentage} = \text{total score obtained/max score} \times 100\%.$$

From the percentage results obtained, it will then be classified to obtain data conclusions such as Table 1.

Table 1. Criteria Value by Expert

No	Percentage	Criteria	Meaning
1	90–100	Very good	No need to revise
2	75–89	Well	Slightly revised
3	65- 79	Enough	Revised sufficiently
4	55- 64	Not enough	Many things have been revised
5	1–54	Very less	Repeated product

3 Result and Discussion

The results of this study are video games in physical education learning for elementary school students in grade 1. Video games include introduction, core and closing. The introduction includes introductions and delivery of learning objectives. The core section contains the name of the game, the purpose of the game, the tools needed, the playing field and how to play. While the closing section contains an evaluation in the form of tasks that must be done by students. The developed video consists of 8 types of games that combine basic movements (locomotor, non-locomotor and manipulative) and students' knowledge about themselves. These games include:

1) Find Me
   A game where students walk, run and jump according to the specified trajectory then look for the initial letters of their names and pronounce them aloud.
2) Say Friend's Name
   A game where students walk, run and jump according to the specified trajectory then take a picture (male or female) then look for the letters of friends according to their gender and assemble them into a name.
3) Guess the Body
   Simple games are carried out alternately by guessing the name of the body part according to the instructions given.
4) X&O (Yes and No)
   A game by performing various basic locomotor movements where students play by giving an X (cross) on the body part that other people should not touch and an O mark on the body part that may be touched.
5) Walk, Jump and Hop Games
   Games to train students' balanced motion by walking, jumping and jumping.
6) Guard and Care
   A game by doing various variations of locomotor movements to match pictures of body parts and pictures of how to maintain or care for them.
7) Right Place
   A game where participants take letters in the boxes provided then sort out vowels and consonants and put them in the space provided.
8) Tracking Game
   The game "Searching for Traces" is a group game to find pictures and letters to be assembled into words according to the images obtained.

Furthermore, the video that has been developed is validated by 4 experts according to their respective fields including material experts, design experts, media experts and field practitioners to determine the feasibility of the developed product before product testing is carried out. The results of product validation tests by experts are as follows.

Based on Table 2, information is obtained about the results of product validation, namely in terms of media, it scores 98% in the very good category, in terms of design it scores 78% in the good category, in terms of material it scores 93.4% in the very good category, and from field practitioners it gets a score of 93.4%. 94.2% in the very good category.

Table 2. Expert Validation Test Results

No	Expert	Score	Category
1	Media	98%	Very good
2	Design	78%	Well
3	Theory	93.25%	Very good
4	Field Practitioner	94.%	Very good

This indicates that the video game learning in physical education developed is suitable for use in elementary schools. The rapid development of digital technology affects the models, strategies and methods including the media used. The use of learning media is an important part of the learning process because it is one of the learning resources in channeling messages to students. Learning video is one of the media that can be used in physical education learning. Video games can be used as tools to support physical education learning because they can improve children's knowledge, skills, attitudes and behavior in relation to health and physical exercise [21]. The use of video can help students in learning because they can control the video by playing, pausing, moving forward and repeating the video according to their needs [22]. While the game was chosen to be developed in the video because children basically like playing activities. Play is a child's activity to demonstrate the ability to explore, imagine and solve problems [23]. Games are a child's need because by playing they can gain knowledge and develop skills that are important in learning [24]. Through playing, children are easier to get to know the world, can improve thinking skills, increase creative power, channel emotions and socialize with others [25].

4   Conclusion

The results showed that the video game developed was feasible to be used in physical education learning. Furthermore, these findings still require further trials to find the effectiveness of the developed video games. This video game can also be developed by adding features to make the video more interactive.

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