Development of Application-Based Pencak Silat Learning Materials for Teachers of Physical Education Subjects, Junior High Schools, in Jember Regency

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Abstract. Learning is an effort of assistance provided by the teacher to students, the mentoring effort is carried out so that they can carry out the process of acquiring knowledge. This research aims to develop application-besed learning of pencak silat material for teacher of PJOK SMP subjects in Jember. This research method used research and development, following a 8-step. The results of data analysis showed that 88.33% of learning experts, 75% of pencak silat experts, 98.33% of media experts stated that the application product was very good. The total number of assessment results involving 29 PJOK subject teachers in SMP in Jember regency, obtained the result of 98.71% small group and 88.08% big group. From the results of the assessment, it can be concluded that the learning product is hightly valid and can be used by teachers of PJOK SMP subjects in Jember Regency.

Keywords: Development · Learning · Pencak Silat · Application

1 Introduction

Living in the 4.0 era requires humans to always keep abreast of technological developments. Almost in all human activities using simple technology or sophisticated technology. One of the technologies that greatly influence human activities is information technology [1] designing learning can use technology, by utilizing technology can convey and receive the information and knowledge needed. Therefore, technology has a very big opportunity for the development of education. [2] educational technology synergies can act as a catalyst in efforts to improve the quality of education, but it should be borne in mind that technology only plays a role in helping and facilitating the learning process. Learning can also be a benchmark for educational success if the provision of information from educators can be well received by students. Learning is an effort of assistance provided by the teacher to students, the assistance effort is carried out in order to carry out the process of acquiring knowledge and knowledge [3]. Learning is direct or indirect interaction between teachers and students, with application-based learning

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offering convenience in the learning process. It is possible to help physical education teachers in providing learning materials.

Physical education is one of the most important parts of education, physical education not only teaches about sports, but also teaches discipline, a sense of responsibility, and cooperation [4]. Physical education aims to develop students' abilities in knowledge, skills and attitudes through physical activities. Physical education provides opportunities for students to learn to understand real conditions physically, mentally, and socially [5]. Physical education focuses on the physical, movement and emotional activities of students. Physical education is a subject that is structured, directed and also planned through learning activities concerning affective, cognitive and psychomotor [6]. Developing and maintaining the human body is the goal of learning physical education [7]. In physical learning, students are given the opportunity to learn, understand, participate and develop [5]. The function of physical education is to develop motor skills, improve physical skills and acquire broader knowledge [8].

In physical education, there are several categories of sports that are taught, one of which is Pencak Silat. Pencak Silat is a legacy of Indonesian ancestors who are engaged in martial arts [9]. Pencak Silat can be interpreted as self-protection from all kinds of dangers [10]. Pencak Silat culture has been passed down by ancestors to the people of Indonesia, not only in their own country but Pencak Silat has been accepted by the international community [11]. Pencak Silat in educational sports is more emphasized on the development of physical skills, especially on basic attitudes and movements [12]. In learning pencak silat, students are assigned to master the forms of basic techniques, starting from simple learning to complex learning. Physical Education teachers as much as possible convey the material well, therefore Physical Education teachers must be able to develop imaginative and creative learning by being able to utilize technology. The demands of technological developments require teachers to continue to improve their quality and capacity, not only in knowledge and skills, but also adapt to technology. [13].

Application-based learning methods are very important for teachers and students, in addition to keeping up with the times, providing application-based learning methods will also help teachers provide learning materials to students. According to [14], to meet current and future challenges education and technology must evolve in tandem. This is due to changes in needs from very basic needs to complex needs, so that new developments or innovations are needed for the implementation of modern education. With the development of technology, teachers can choose to use various forms of applications such as the iSpring Suite to deliver teaching materials. In previous research, iSpring Suite is software that works to convert PowerPoint Text (PPT) files into flash and integrates easily with Microsoft Power Point. Previous research according to [15], iSpring Suite is a media resource that can help the presentation of teaching materials.

According to the results of observations on April 7, 2021 in Jember Regency, the eastern region, the researchers observed that in Jember Regency, the East Region, teachers had never provided teaching materials using application-based learning, this was the reference for researchers to distribute needs analysis questionnaires using google form to students. Physical Education subject teachers for Junior High Schools in East Jember Regency and data obtained from 29 teachers. With the results that 89.7% of teachers have given Pencak Silat material in class, 58.6% of teachers have given 2 meetings on

Pencak Silat material in one semester, 100% used textbooks, learning implementation plan, student worksheets and added with video learning examples, as many as 69% of teachers have used application-based learning media on pencak silat material, and there are 75.9% used videos in the delivery of teaching materials, while 93.1% of teachers still use learning tools (learning implementation plans, textbooks, evaluation) print-out based. 58.6% of teachers have developed application-based pencak silat learning, 100% of teachers have cellphones or smartphones, 93.1% of teachers have computers or laptops, 100% of teachers can operate computers or laptops, 100% of teachers require the development of learning materials based on pencak silat. Application.

2 Method

This research is a product development activity to solve a problem that occurs in society and in the world of education. This research method follows the steps model developed by Sugiyono (2016: 298), which is described in these steps: (1) explore the potential and problems that occur, (2) collect data, (3) create products/applications, (4) product assessment by experts, (5) product improvement, (6) product trial, (7) product improvement, (8) final product.

The first step is the distribution of a needs analysis questionnaire in the form of a google form to teachers of Physical Education, Junior High Schools in the eastern region of Jember Regency. The second step is product design, at this stage is the beginning of planning the development of application-based pencak silat learning material. For the initial stage, the researcher designed the product by making a storyboard. After the storyboard is made, the researcher starts making the product. After doing the product design, the researcher carried out the validation step.

The validation process in this research and development involves 3 experts who are competent in their respective fields, including learning experts, Pencak Silat experts and media experts. Researchers will get an assessment of the shortcomings of the products developed, so that with these various inputs researchers can update the product. The next step is design revision, the researcher updates the application product in accordance with the assessment results from the validator. Furthermore, the researchers continued to test the product.

The product trial involved 29 subjects, while the subject in question was a teacher of Physical Education, Junior High School in the eastern region of Jember Regency. In this trial, they were divided into 2 groups, which included 8 teachers in small groups, while 21 teachers in large groups. Then proceed to the data analysis stage to assess the percentage of product feasibility.

To answer the validation results, the researcher uses quantitative descriptive analysis techniques in the form of percentages using a Likert scale as an assessment category that has been provided by Sugiyono (2016: 98). The categories of scores on the Likert scale (Table 1).

The formula below is used to process the validation data.

$$V = \frac{TSEV}{S - max} \times 100\%$$

Table 1. Rating category on the likert scale.

Number	Score	Description
1	4	Very good
2	3	Good
3	2	Not good
4	1	Very not good

Sugiyono (2016:93)

Table 2. Percentage criteria.

Percent	Category	Signification
75,01%–100,00%	Very Valid	Used without revision
50,01%–75,00%	Quite Valid	Used with minor revisions
25,01%–50,00%	Less Valid	Can not be used
00,00%–25,00%	Invalid	Forbidden to use

Explanation:

V: Validity.

TSEV: Validator's total empirical score.

S-max: Maximum expected total.

100%: Constant number.

The processed data is then adjusted to the product category, with the aim of facilitating conclusions drawn from the results of data analysis (Table 2).

3 Result and Discussion

3.1 Results

In this discussion, we will discuss the products developed and the presentation of the test results data. The image below is an image of the display or application icon listed on the smartphone and the second image is the initial display of the Jamani Education learning application for Pencak Silat material (Figs. 1 and 2).

The results of the analysis from several experts, small groups and large groups are presented in tables and diagrams as follows (Table 3, Fig. 3).

The validation test by learning experts obtained a percentage of 88.33%, then converted according to the percentage criteria with the result that the product was categorized as very valid (Table 4, Fig. 4).

The validation test by the pencak silat expert obtained a percentage of 75%, then converted according to the percentage criteria with the result that the product was categorized as quite valid (Table 5, Fig. 5).

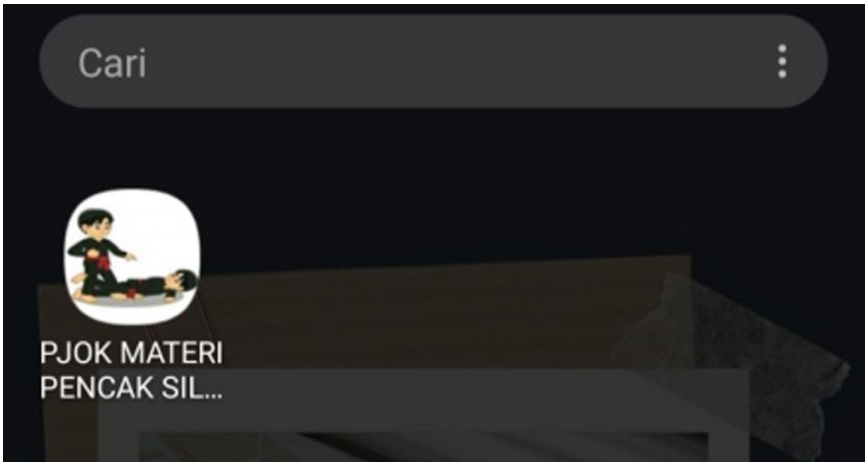

Fig. 1. App icon display.

Fig. 2. Main display of learning development products for pencak silat materials.

Table 3. Learning expert analysis data results.

Number	Aspect	Percent	Category
1	Compatibility	86%	Very valid
2	Easiness	91%	Very Valid
3	Usefulness	100%	Very Valid
	Validity	88,33%	Very Valid

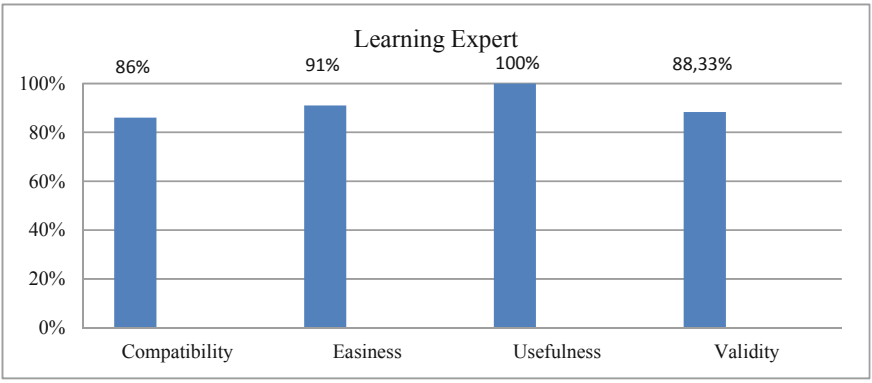

Fig. 3. Learning expert assessment diagram.

Table 4. The results of the analysis of the martial arts expert.

Number	Aspect	Percent	Category
1	Compatibility	70%	Quite Valid
2	Easiness	75%	Quite Valid
3	Exactness	83%	Quite Valid
	Validity	75%	Quite Valid

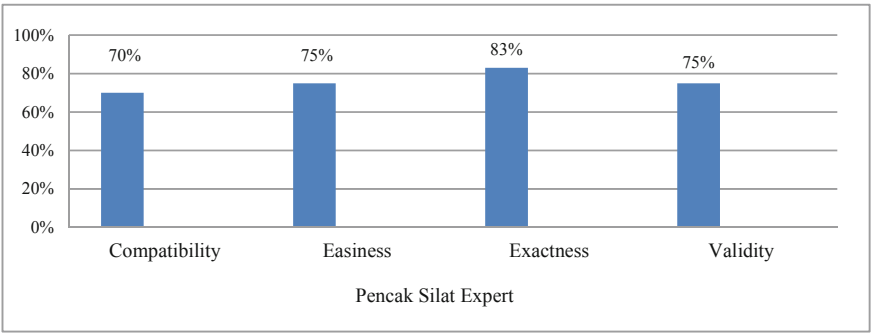

Fig. 4. Pencak silat expert rating chart.

The validity test by media experts obtained a percentage of 98.33%, then converted according to the percentage criteria with the result that the product was categorized as very valid (Table 6, Fig. 6).

From the data obtained a percentage of 98.71%, then converted based on the percentage criteria table which shows that the product is categorized as very valid (Table 7, Fig. 7).

Table 5. Media expert analysis data results.

Number	Aspect	Percent	Category
1	Usefulness	100%	Very Valid
2	Attractiveness	100%	Very Valid
3	Clarity	100%	Very Valid
4	Compatibility	100%	Very Valid
5	Exactness	87%	Very Valid
6	Completeness	100%	Very Valid
	Validity	98,33%	Very Valid

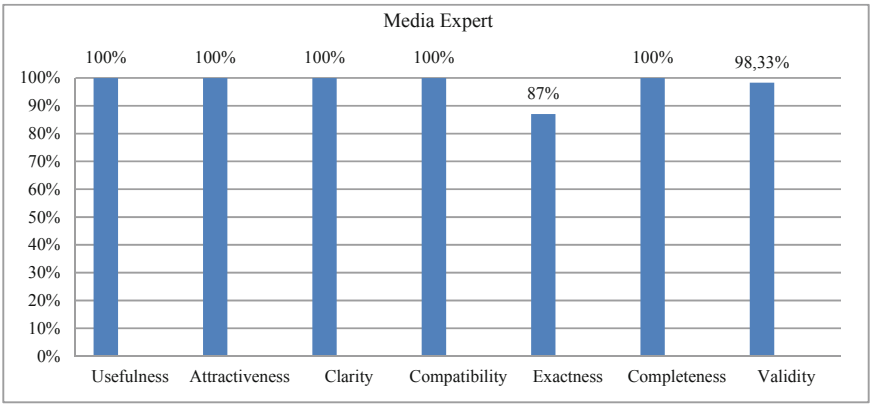

Fig. 5. Media expert rating chart.

Table 6. Small group trial analysis data results.

Number	Aspect	Percent	Category
1	Compatibility	100%	Very Valid
2	Clarity	97%	Very Valid
3	Attractiveness	98%	Very Valid
4	Easiness	100%	Very Valid
	Validity	98,71%	Very Valid

The result data obtained a percentage of 88.08%, then converted based on the percentage criteria table which showed that the product was categorized as very valid and very feasible to operate on the subject of Jamani Education, Pencak Silat material. Application-based learning that is developed is very good and can motivate teachers to

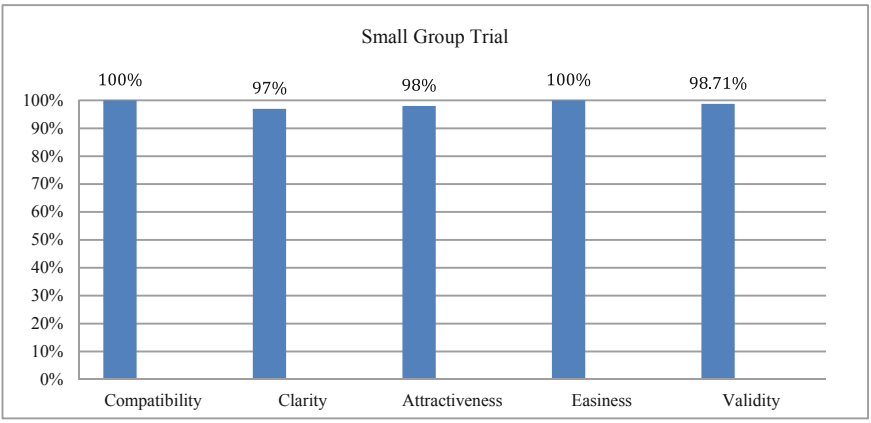

Fig. 6. Small group trial assessment diagram.

Table 7. Large group trial analysis data results.

Number	Aspect	Percent	Category
1	Compatibility	95%	Very Valid
2	Clarity	92%	Very Valid
3	Attractiveness	93%	Very Valid
4	Easiness	94%	Very Valid
	Validity	88,08%	Very Valid

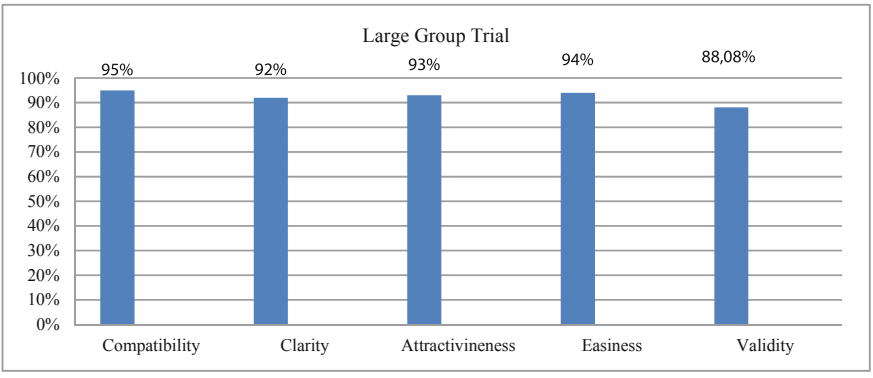

Fig. 7. Large Group Trial Assessment Diagram

always develop to keep up with the times. With the development of application-based learning can help teachers in delivering learning materials.

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3.2 Discussion

The product development of this pencak silat learning material was developed in the form of the iSpring Suite application. In the application there are several features that can help teachers of Physical Education subjects, Junior High Schools to deliver learning materials. With the availability of very interesting learning content such as material presented in the form of text, images and videos, students will be more interested in learning it. [16] The application of iSpring Suite application-based learning can increase students' learning motivation, by providing content in attractive packaging that will increase students' enthusiasm to learn. According to [17] teachers can more easily deliver material by using the iSpring Suite application.

According to the results of the needs analysis, there are 100% of Physical Education teachers, Middle Schools in East Jember Regency require the development of application-based learning, because the development of application-based learning can support learning success and also learning independence. According to [18] technological developments develop with the influence of community needs. For education this development will be a positive impact, by providing mixed learning will make the teaching and learning process run better. Gasong (2018:8), Learning can be said as the consistency of activities that result in changes in behavior. Meanwhile, according to Rusman (2017: 76), the formation of personality and individual behavior does not necessarily materialize, but through a process of behavior change with several supporting aspects such as interaction with the environment, this process is then interpreted as a learning process. [19], explains that human experience can bring about positive changes in understanding, skills, knowledge and attitudes. With the help of technology, the process of change will be easier to obtain. [20], The growing flow of information in the formal education sector makes digital literacy skills indispensable. The era of information technology openness that is experiencing development will automatically change behavior in interacting.

Based on the assessment of media experts, this application product provides benefits for users and also this iSpring Suite-based learning application is made attractively, so that users can make the best use of this media. [21] In the teaching and learning process, the media as a messenger and plays a role in channeling the process of delivering teaching materials. Agree with Personal (2017:5), in the learning process conveying information effectively and efficiently can be assisted by learning media. The use of learning media affects the success of learning [22]. With the development of application-based learning, it is expected to reduce students' dependence on teachers [23]. With this, teachers can take advantage of application-based media for smooth learning.

This product for developing pencak silat learning material is packaged in an attractive and easy to operate manner. In the application there is a main menu that contains

the main points of Physical Education learning materials for pencak silat including; Basic competencies, materials, learning videos, evaluations and reference lists. In the basic competency menu, the material menu contains materials for Pencak Silat grades VII, VIII, IX. In the learning video menu, there are several video tutorials for specific movements to variations and combinations of pencak silat techniques. The evaluation in this application is equipped with a quiz model in the form of multiple choice practice questions. This development product offers a lot of pencak silat learning materials that can be distributed by teachers to students to increase their knowledge and skills of Pencak Silat.

This application product has significant advantages because in the process of designing to making applications it is quite easy to say. The design process of this application only uses Microsoft Power Point. With it in making applications can be easily accessed. The use of learning aids in the learning process by using applications can make it easier for teachers to achieve learning objectives, especially in the material for pencak silat. Agree with previous research according to [24], the development of pencak silat learning applications can be easily accessed by students, students will also be more interested in reviewing the materials that have been taught in the form of interesting applications. The development of this application-based learning can help students learn more independently. So that students will more easily understand the material and can result in an increase from before [25].

Application product development using iSpring Suite software can be operated on laptops and on Android, the weakness of this product cannot be accessed using iOS and also the weakness of application products that can be operated offline is a large enough capacity (Table 8).

With the development of this application product, it is hoped that pencak silat learning can be easily understood, and can also provide learning motivation for students and facilitated teachers when delivering learning. For researchers who will develop physical education learning products, pencak silat speakers should use software that is easily accessible, easy to operate and useful for users.

4 Conclusion

According to the application product analysis data that obtained 98.71% small group trial data and 88.08% large group trial data, the application product was suitable for use in learning Physical Education, Junior High School material for pencak silat.

Table 8. Comparison of pencak silat learning application products.

Previous Research and Development (title and researcher)	Similarity	Differences	
		Previous research and development	Latest research and development
Marwan (2018) Development of the Android Application-Based Pencak Silat Movement Learning Model	– Utilizing a smartphone as a tool for operating applications – Using pictures and videos in the delivery of learning materials – Facilitate the teaching and learning process	– Product development utilizing the WhatsApp application – The material contained in the application product is an image that is put together into a video – Materials can be copied using VCDs, computers, laptops, etc. – Accessed online	– Product development utilizing the iSpring Suite software – Available material in the form of text, images, videos, and learning evaluation in the form of quizzes – Can be accessed online and offline
Angga et al. (2020) Development of Interactive Multimedia Teaching Materials for Pencak Silat CourseLab 2. 4 Based Interactive Multimedia Teaching Material Development for Pencak Silat	– Utilizing media as a tool to develop teaching materials – Product development discusses the basic techniques of pencak silat – The product does not have a programming process – Easily accessible	– Product development utilizing the CourseLab 2.4. Program – Web-based product end result – Can be published to LMS and autorun - play CD	– Product development utilizing the iSpring Suite software – Application and html based product end result – Can be accessed on laptops and android smartphones
A. W. Kurniawan (2018) Development of Audio-Visual Media Pencak Silat Art With Music	– Using audio-visual as learning material – There are pictures, videos, sounds and narration of pencak silat learning	– Product development utilizing audio-visual media packaged in the form of VCD – Can be accessed offline	– Product development utilizing the iSpring Suite software – Application and HTML based product end result – Products can be accessed online and offline

(*continued*)

Table 8. (*continued*)

Previous Research and Development (title and researcher)	Similarity	Differences	
		Previous research and development	Latest research and development
Valentino & Ihsan (2018) Development of Macromedia Flash 8-Based Pencak Silat Learning Media for Junior High Schools	– Produce learning products for pencak silat materials – Make it easier for junior high school teachers to provide pencak silat learning materials – Easily accessible	– Product development utilizing macromedia flash 8. Application – The final product is packaged as a CD – Products can be accessed offline	– Product development utilizing the iSpring Suite software – Application and HTML based product end result – Products can be accessed online and offline

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