

The Development of the PE Elementary School Teacher to Improve the Professional in Implementing the Learning for the Revolution Industrial 4.0 Era

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Abstract—The objectives of this study are as follows: (a) reviewing the procedure for developing a professional development model for PE elementary school teachers in teaching and learning, (b) producing a model for professional development that is appropriate for elementary school teachers in conducting learning, (c) examining the testing process for professional development models for elementary school teachers in conducting learning, (d) reviewing the results of testing the professional development model for PE elementary school teachers in organizing learning. According to Lee and Owens, this research on the development of physical education learning tools based on the articulate storyline application refers to the development research model. The research results by learning experts were 77%, PE experts 85%, elementary game experts 98%, media experts 98%, small group trials 84%, large group trials 86%. The research conclusion showed that the development of instructional media with articulate storylines was stated to have clarity, attractiveness, appropriateness, accuracy, and feasibility for students.

Keywords—*Articulate storyline, Physical Education, Learning Media.*

I. INTRODUCTION

Teachers have a position in delivering education, which plays an important role in providing the learning process. The teacher is one of the determining factors for educational achievement: the

base for achieving the goals and the nation's development. The progress in education is significantly related to the advance of a country. Therefore, teacher creation is a necessity that cannot be ignored. Appreciation for the teaching profession has been carried out for a long time and will continue to be developed. The real action of teacher appreciation was conducted on December 4, 2004, with teachers' declaration as a profession. On December 15, 2005, the issuance of Law Number 14 of 2005 concerning Teachers and Lecturers. This law aims to uplift the dignity of teachers and serve as a formal juridical foundation in enhancing their professionalism. Article 8 states: "teachers are required to have academic qualifications, competencies, teacher certificates, be physically and mentally healthy, and can reach the goal of national education." In the Government Regulation of the Republic of Indonesia Number 74 of 2008 concerning Teachers, article 48 paragraph 1 states: "the development and enhancement of teacher competence ... is implemented through a system of continuous professional guidance and development (PKB)".

Physical education is an educational process that aims to develop individuals in physical activity, sports, and games, which aim to improve the motor, social, and emotional aspects of students [1]. The purpose of physical education is to develop the

potential that is owned or to provide opportunities for students to have aspects of mental, emotional, social, physical, moral, and physical fitness [2].

The training for PE teachers that have been conducted has tended to stop in the phase during coaching (follow-up training has not been intensively done in each school), even though good coaching is done continuously. Another weakness of the coaching model often occurred so far is the lack of face-to-face time between the teacher and the supervisor. The mono-interaction coaching process (placing the teacher only as a listener), and the lack of conceptualization and skill training collaborate with peers or other parties. In recent years, new teacher professional development uses a new model/paradigm, which is planned systematically as a long-term process to encourage professional growth and development [3]. Previously professional development consisted of workshops or short-term courses on new information on certain aspects, not usually related to the teacher's work.

Coaching to face the Industrial Revolution era 4.0 is needed to form a creative, innovative, and competitive generation. One of these can be achieved by optimizing the use of technology as an educational aid that is expected to produce output that can follow or change the times for the better. To develop and spread, it requires the application of 6 main principles. The six principles are: **(a) privacy and security, (b) transparency, (c) fairness, (d) reliability, (e) inclusiveness, (f) accountability.** One solution for educational institutions in facing the 4.0 educational revolution is to use Big Data. Big Data itself is a technology system introduced to tackle the "information explosion" in line with mobile users' growing ecosystem and internet data. These five competencies are considered as much needed assets to compete in the era of the industrial revolution 4.0. The five competencies are: (a) critical thinking skills, (b) creative and innovative abilities, (c) good communication skills and skills, (d) cooperation skills, (e) high self-confidence.

In the perpetrator's context, school principals and supervisors training for PE teachers and supervisors who do not understand the characteristics of related disciplines. It can lead to a misunderstanding of perception about the essence of PE. The deviation is exacerbated by the model of supervision that tends to be superior to a subordinate, the dominance of initiatives by the coach, tends to be directive or authoritarian, general and broad, tends to be evaluative (find fault), directs and dictates. Adequate professionalism is a prerequisite that must be present in teachers, and therefore relevant and continuous guidance is urgently needed. The relevance of coaching is directed at the characteristics of PE and the personality characteristics of PE

teachers. On an ongoing basis, it is required at the constant, dynamic, and progressive teacher coaching activities to answer professional needs that always develop from time to time.

The objectives of this study are as follows: (a) reviewing the procedure for developing a professional development model for elementary school teachers in teaching and learning, (b) producing a model for professional development that is suitable for elementary school teachers in conducting learning, (c) examining the testing process for professional development models for elementary school teachers in conducting learning, (d) reviewing the results of testing the professional development model for elementary school teachers in organizing learning.

II. METHOD

This research on developing physical education learning tools based on the articulate storyline application refers to the development research model [4]. The procedure used in this study consists of seven steps, namely: (1) conducting a needs analysis, (2) identifying the aspirational model desired by the PE elementary school teachers, (3) developing the initial model, (4) conducting an expert test, (5) conducting small-scale trials (testing the use of models), (6) conducting field trials (testing the application of models) using action research (action research), and (7) producing the final model.

III. RESULT

The data presented in this discussion includes data from 1) validation of learning experts, 2) validation of elementary game experts, 3) validation of PE experts, 4) validation of media experts, 5) small group trials, 6) large group trials.

1. Learning Expert Validation

Table 1. Results of Learning Expert Data Analysis

No.	Aspect	%	Category
1.	Clarity	80	Very Valid
2.	Accuracy	75	Sufficiently Valid
3.	Feasibility	75	Quite Valid
Average		77	Sangat Valid

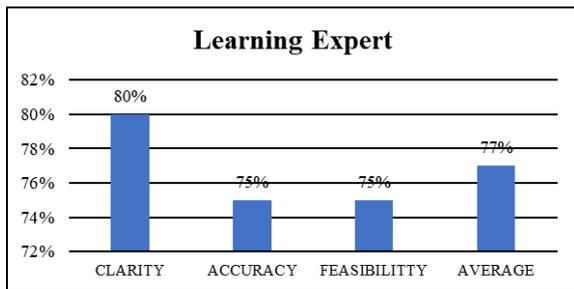


Figure 1. Percentage diagram of learning experts' justification on product development of physical education learning tools based on the Articulate Storyline application

Based on the data analysis results obtained through learning experts with a percentage of 77%, these results are obtained based on the aspects that have been created. The next stage is to convert these results into a feasibility classification table, which shows that the product development of Physical Education learning tools based on the articulate storyline application has very valid criteria and is feasible to be implemented in group trials.

2. Validation of PE Experts

Table 2. Results of Data Analysis of PE Experts

No.	Aspect	%	Category
1.	Clarity	100	Very Valid
2.	Accuracy	89	Very Valid
3.	Feasibility	75	Quite Valid
4.	Appropriateness	75	Quite Valid
Average		85	Very Valid

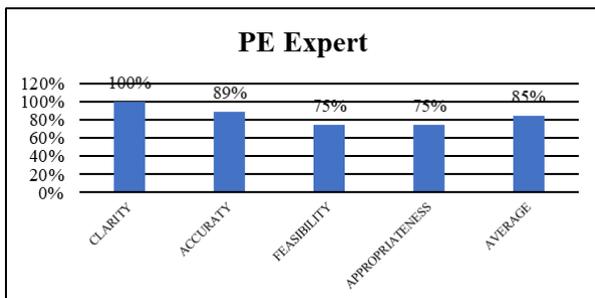


Figure 2. Percentage diagram of PE expert justification on the development of physical education learning tools based on the Articulate Storyline application

Based on the data analysis results obtained through PE experts with a percentage of 85%, these results are obtained based on the aspects that have been arranged. The next stage is to transfer these results into a feasibility classification table, which shows that the product development of Physical Education learning tools based on the articulate storyline application has very valid criteria and is feasible to be implemented in group trials.

3. Validation of Elementary Game Expert

Table 3. Results of SD Game Expert Data Analysis

No.	Aspect	%	Category
1.	Clarity	100	Very Valid
2.	Accuracy	93	Very Valid
3.	Feasibility	100	Very Valid
4.	Appropriateness	100	Very Valid
Average		98	Very Valid

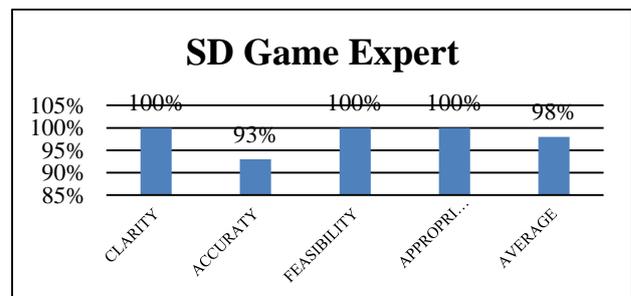


Figure 3. Percentage Diagram of Elementary Game Expert Justification on Product Development of Learning Tools for Physical Education Based on the Articulate Storyline Application

Based on the data results analysis obtained through elementary school game experts with a percentage of 98%, the results were obtained based on the aspects that have been made. The next stage is to convert these results into a feasibility classification table, which shows that the product development of physical education learning tools based on the articulate storyline application has very valid criteria and is feasible for group trials.

4. Validation of Media Expert

Table 4. Results of Media Expert Data Analysis

No.	Aspect	%	Category
1.	Clarity	90	Very Valid
2.	Completeness	100	Very Valid
3.	Feasibility	100	Very Valid
4.	Attractiveness	100	Very Valid
5.	Appropriateness	98	Very Valid
6.	Accuracy	100	Very Valid
Average		98	Very Valid

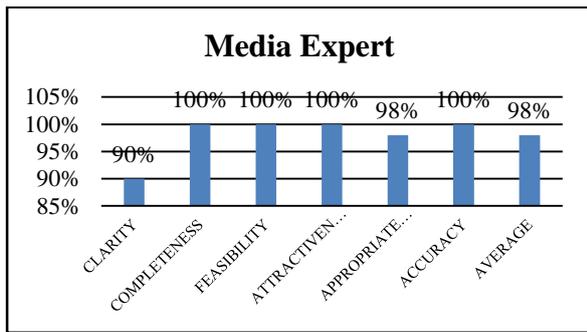


Figure 4. Percentage Diagram of Media Experts' Justification of Development Products for Learning Tools for Physical Education based on the Articulate Storyline Application

Regarding the data analysis result from the media expert, the percentage of 98 % was obtained based on the aspects that have been made. The next stage is to convert these results into a feasibility classification table, which shows that the product development of Physical Education learning tools based on the articulate storyline application has very valid criteria and is feasible to be implemented in group trials.

5. Small Group Trials

Table 5. Results of Small Group Trial Data Analysis

No.	Aspect	%	Category
1.	Clarity	84	Very Valid
2.	Attractiveness	85	Very Valid
3.	Feasibility	87	Very Valid
4.	Usability	86	Very Valid
5.	Appropriateness	80	Very Valid
Average		84	Very Valid

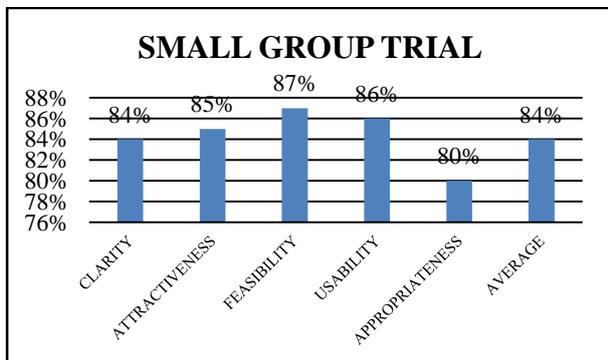


Figure 5. Percentage diagram of small group trials on the development of physical education learning tools based on the Articulate Storyline application

Based on the results of data analysis obtained in small group trials with a percentage of 84%, these results were obtained based on the aspects that have been created. The next stage was to convert these results into a feasibility classification table that showed that the product development of Physical

Education learning tools based on the articulate storyline application has very valid criteria and is feasible for learning.

6. Large Group Trials

Table 6. Results of Large Group Trial Data Analysis

No.	Aspect	%	Category
1.	Clarity	86	Very Valid
2.	Attractiveness	85	Very Valid
3.	Feasibility	85	Very Valid
4.	Usability	88	Very Valid
5.	Appropriateness	84	Very Valid
Average		86	Very Valid

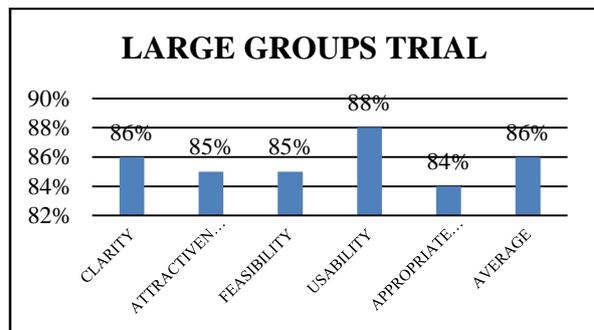


Figure 6. Diagram of Percentage of Large Group Trials on Product Development of Learning Devices for Physical Education based on the Articulate Storyline Application

Based on the result, it was obtained in large group trials with a percentage of 86%. These results were obtained based on the aspects that have been made. The next stage was to convert these results into a feasibility classification table, which showed that the product development of Physical Education learning tools based on the articulate storyline application had very valid criteria and was feasible for learning.

IV. DISCUSSION

This articulate storyline application media is beneficial for the learning process and is used to convey learning material attractively because it can use existing templates or templates according to their tastes and abilities. This articulate storyline application media was needed to share material or messages in the physical education learning process. The articulate storyline program was characterized by a menu such as a zoom button to enlarge an image. Also, a question button to see a more in-depth explanation of the material, navigation buttons in the form of next, back, and submit are always at the bottom of the screen and are automatically available in the media. 5]. The articulate storyline provides a workspace that can adapt to a template in presenting interactive and interesting material [6].

Based on the results of large and small group trials, physical education learning tools based on the articulate storyline application obtained very valid

criteria, which means that this product was feasible and can be used in physical education learning. This product is a development product that combines several aspects, including text, graphics, images, and video from the sound. This product will be very helpful in learning Physical Education later so that Physical Education learning has a unique and interesting variety of learning that is obtained from this articulate storyline application.

The articulate storyline was software that functions as a medium of communication or presentation [7]. This form was a product of research and development as an effective and efficient learning tool. Besides, it is to support the learning process, creative and innovative media was needed to attract students to study Physical Education subjects. The development of learning media based on the Articulate Storyline curriculum 2013 can be used to obtain research results with excellent predicate [8]. The results showed that class learning results using articulate storyline learning media in social studies subjects increased by 70% compared to classes that had not used supporting media [9].

Learning media based on the application of the articulate storyline for Economy class X and Senior High is effective for use in learning [10]. The development of learning media based on the articulate storyline application really helps facilitate digital teaching materials [11]. This articulate storyline application product has several advantages, including the product that is easy to understand because there are pictures, writing, video, and audio. There are also some animations to increase students' interest in participating in learning, especially physical fitness, for elementary school children. The advantages of using interactive multimedia in learning are as follows: (1) Educators are required to be creative and innovative in seeking educational breakthroughs, (2) Learning systems are more innovative and creative, (3) Able to combine text, images, audio, video and animation so that they can support the achievement of learning objectives, (4) training students to be more independent to gain knowledge, (5) being able to imagine or describe material that has been difficult because it is only explained by teaching aids, (6) able to increase students' motivation when doing learning activities (12].

V. CONCLUSION

The results of research and development can be concluded as follows: (1) based on the results of

the expert evaluation that the product of Physical Education learning development using articulate storyline media is stated to have clarity, attractiveness, appropriateness, accuracy, and feasibility of use by students, (2) based on the results of the evaluation of product trials in small groups obtained a percentage of 84% in the very valid category, for large group trials a percentage of 86% was included in the very valid category. The results presented that the development of learning media with articulate storylines was stated to have clarity, attractiveness, appropriateness, accuracy, and feasibility for students.

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