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Development of Digital Sway Teaching Materials for Online Learning in the COVID-19 Pandemic Era

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Abstract

Learning in the COVID-19 pandemic era requires practical teaching materials that are easily accessible to students. Digital teaching materials are alternative solutions to accommodate online learning needs. This study aimed to produce digital teaching materials using Microsoft Office 365 Sway in the era of the COVID-19 pandemic. This was development research and the ADDIE model was used, which consists of five stages, namely analysis, design, development, implementation and evaluation. The sample consisted of 242 students in Elementary School Teacher Education at the University of Muhammadiyah Malang. The results of the validation tests for teaching materials experts, material experts, and linguists showed that the average score obtained was 81.8 with valid criteria. The average score obtained by the students with very practical criteria was 3.6. User responses showed that students were interested in, and easily accessed teaching materials via URL, and digital teaching materials were equipped with videos, animations, pictures and graphic information to support lecture materials.

Keywords: digital teaching materials, COVID-19, Microsoft sway, online learning

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1. Introduction

Internet integrated learning resources as a form of contemporary and complex learning resources are an integral part of achieving learning goals. Material as a learning resource can be obtained directly, for example through the internet or direct sources. The material obtained through the internet can be used as digital teaching materials during the COVID-19 pandemic. The material presented in learning can be integrated through interactive media based on computer technology,(Priyanto, 2009) so that learning becomes more interactive, effective, efficient, and interesting.

The role of information technology that is currently developing has a significant impact on the learning implementation system. Based on research results(Budiman, 2017)said that globally the world of education is required to always follow the development of information technology which is experiencing rapid progress. Educational practitioners, in this case, teachers and lecturers, are faced with an environment that provides various alternative channels of information that can be used to meet information needs. This is in line with the opinion of Supianti (2018), which states that advances in information technology bring changes in the use of learning in the classroom. This is what is meant by computer-based technology by utilizing the Microsoft platform with an existing Google Suite account and optimizing computer literacy skills.

The existence of digital teaching materials used in learning as a source of technology-based information channels is an alternative learning media that is attractive, practical, and easy to use. This of course also demands the competence of teachers and lecturers, especially competence in the use of technology in learning. In this regard, it can be said that the use of digital teaching materials in learning among educators is increasing. This is also marked by the increasing number of resources available on the internet as facilities for delivering learning materials through technological means.

The presence of internet technology as a means of supporting learning media is a new media that can be used in learning. Teachers and lecturers can use these tools according to the positive information and content in them. These tools can be integrated through video content, animation, pictures, and other graphic elements according to the needs and characteristics of students. Sources of video content on the internet are varied and complex, so the teacher increases awareness so that the material contained on the internet can be used wisely and on target.

Furthermore, in the implementation of learning, the teacher has a role as a good manager of learning media, as the accuracy of the teacher in selecting and using learning media will determine the success of learning (Solihatin, 2009). It can be said indirectly that learning using learning media will create a sense of notification for students to learn the material and create new ideas as an impact of the knowledge that students have. Teachers as agents of reforms and holders of important roles in education should be able to master the application of computer-based learning media. One of the focused media is instructional video media.

A sway is a tool that can be used in making instructional media designs. Sway can be used as an online presentation tool that can be applied in various situations and conditions such as research conducted by,(Zakia, 2017) which can improve the ability of teachers to make digital storytelling, and research from (Meikayanti & Huda, 2017)which

can improve student presentation skills. According to(Huda, 2017)sway is a form of software that can be used in creating products that combine text, sound, video, and images when the presentation is run. Based on this background, a sway is a tool that can be applied in developing teaching materials and can be used as an alternative in online learning during the COVID-19 pandemic.

2. Method

This research on the development of digital teaching materials using sway uses the ADDIE development model. The basis for selecting the ADDIE model with the consideration that this model has a procedure that is coherent, clear, and easy to understand. The application of this model is also systematic and has a clear theory in developing teaching materials. (Anglada, 2007)states that ADDIE has five stages as follows: (1) Analyst (2) Design, (3) Development, (4) Implementation or Execution, and (5) Evaluation/feedback (Evaluation). The five stages can be seen in the following chart.

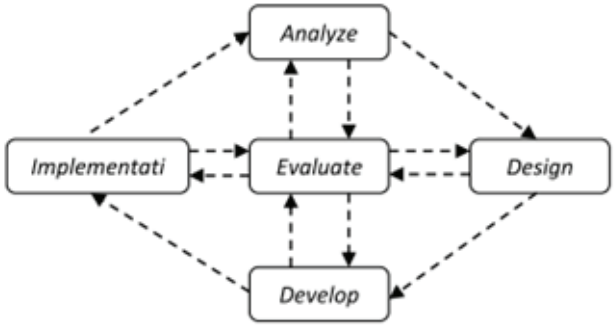

Figure 1: Model stages ADDIE (Branch, 2009)

Based on the research and development model as a guide, the five stages are described as follows:

Stage 1 Analyze in the field needs analysis stage, based on the results of preliminary observations there are findings of the diversity of student characteristics in the Primary School Teacher Education Study Program of the University of Muhammadiyah Malang, all students can apply technology in learning and can take advantage of technological tools and devices in learning. This can be seen in the daily activities of students using laptops and smartphone devices to access learning. Furthermore, students also access the internet every day, but only 75% use the internet to access learning materials. This is because the lecturer does not provide material that is easily accessible on the internet, meaning that students only duplicate the material files provided by the lecturer.

Stage 2 Design, is the stage of designing teaching material products. The main activity that must be carried out in determining the material that is by the competence and learning objectives. Based on curriculum analysis, it can be identified that the competencies that can be developed in digital teaching materials are learning and learning materials.

Stage 3 Development, namely compiling and producing teaching material products by predetermined designs and materials. This development stage is an activity using an online platform to produce teaching materials, namely a sway. At this stage, it is also an activity of combining material competencies from various sources, text, images/graphics, animation, video, and URL of article sources in journals as a complement to the material. After the product is developed, the product will be tested for the validity of its feasibility to material experts, teaching materials and learning media experts, and linguists.

Stage 4 Implementation, namely conducting field trials of digital sway teaching materials carried out on 4th-semester students of elementary school teacher education at the University of Muhammadiyah Malang for the 2020/2021 academic year, totaling 256 students. The trials conducted include small group trials and large group trials. The purpose of implementing this teaching material product is to determine user responses, namely the responses of lecturers and students.

Stage 5 Evaluation is the last stage in developing teaching material products. At this stage, it is an assessment stage based on data that has been collected in the previous stage. The evaluation used is formative evaluation and a summative evaluation at each stage to determine the level of product validity. Formative evaluation to determine the validity of experts, field trials. A summative evaluation is carried out to determine the final result of user responses related to practicality, attractiveness, and feasibility.

The types of data in this study include qualitative data and quantitative data. The instruments used in this research and development are recording documents in the form or format of product development, questionnaires, and learning outcomes tests. (Suriadhi et al., 2014). Qualitative data were obtained from the results of the assessment, criticism, or suggestions for improvement, responses through questionnaire responses from experts and user responses. Quantitative data were obtained from 1) the results of the assessment of material experts, media and teaching materials experts, linguists, 2) results of small group trials and large group trials. The formula used to calculate the percentage of each subject is:

$$\text{Presents} = \frac{\sum(\text{answer} \times \text{score each option})}{n \times \text{the highest score}} \times 100\%$$

Equation 1. The formula for calculating the percentage of validation subjects

The validation criteria used in the validity of the study are presented in the following table:

Table 1: Level of Achievement and Eligibility Quality

No.	Achievement Level	Qualification	Information
1	81-100%	Very good	Very Worth it, does not need to be revised
2	61-80%	Well	Well worth it, no need to revise
3	41-60%	Pretty good	Quite worthy, needs to be revised
4	21-40%	Not good	Not worth it, needs to be revised
5	<20%	Very Poor	Very inappropriate, needs to be revised

Source: (Arikunto, 2008)

3. Result and Discussion

The product developed in this study is a digital sway teaching material. Before producing development, it is necessary to make a storyboard first. Storyboard aims to simplify the appearance of the design and layout of content in the media. So that the appearance and layout of the media produced will match the storyboard that has been designed. The quality of digital sway teaching materials can be seen from the results of initial trials (content expert trials, learning media experts, and learning design experts), individual trials, small group trials, and field trials.

The results of the evaluation of each stage of the trial can be seen in table 2 regarding user responses. The results of the exposure in the table can be explained as follows: (1) Based on the results of the evaluation from content experts, the digital sway teaching material media obtained a percentage level of achievement of 82.89%, related to the presentation, language presentation, and media completeness. After being converted to a conversion table, the percentage level of achievement of 82.89% is in very good qualification, so that digital sway teaching materials do not need to be revised. (2) After completing the content expert trial and revising the product according to the input from the content expert, the second expert validation is the learning media expert trial.

Product testing to instructional media experts is intended to determine the feasibility of the product in terms of learning media. After being converted to the conversion table, the percentage of the achievement level of 78.13% is in a very good qualification. (1) Based on the evaluation results from design experts, the media for making digital sway teaching materials obtained an achievement level percentage of 78.13%. After being converted to a conversion table, the percentage of the achievement level of 78.133% is in good qualification, so that digital sway teaching materials do not need to be revised.

Table 2: User responses (Lecturers)

No.	Aspect	Indicator	Score	Category
1.	Visual communication/inte	Communication interface	3	well
		User friendly	3	Well
		Easy operating instructions	3	Well
		Attractive / attractive	3	Well
		Creative (novelty)	4	Very good
2.	Usefulness	Easy to use (reusability)	4	Very good
		Reuseable (reusable)	3	Well
		Effectiveness in use	4	Very good
		Practicality in use	3	Well
		Instructions are easy to understand	3	Well
3.	Presentation	There is an introduction/archipelago	3	Well
		Systematic consistency of presentation	3	Well
		Sequence / sequencing of presentation	4	Very good
		Easy presentation of instructions for use	3	Well
4.	Serving completeness	Completeness of the introduction	3	Well
		Completeness of the contents	3	Well
		Completeness of the cover	4	Very good
		URL completeness	4	Very good
5.	Presentation of Language	Readability of words/sentences (high readability)	3	well
		Language compatibility with EYD	4	well
		The effectiveness of sentences	3	Well
		Consistent use of terms	3	
		Language suitability with the development of students	3	Well
6.	Design / Layout	Attractive cover design	4	Very good
		Proportional margin layout	3	Well
		The correct placement of Title, subtitles, and illustrations	3	Well
		Match the color contrast blend with the background	3	well
		Font selection suitability	3	Very good
		Suitability of font size selection	3	Well
		Suitability of font color selection	3	Well
		The accuracy of using spaces between sentences	3	Well
		Total Score	101	
		Average score	3.25	Well

Table 3 below is the validation result for each analysis item in the validation of learning media.

Table 3: Recapitulation of Validation Results

No.	Aspect	Score (%)	Information
1	Communicative (easy to understand)	80	valid
2	Ease of operation	81	valid
3	Easy buttons / operating instructions	81	valid
4	Attractive / attractive	80	valid
5	Creative (novelty)	80	valid
6	Easy to use (reusability)	83	valid
7	Reuseable (reusable)	90	Very valid
8	Effectiveness in use	90	Very valid
9	Practicality in use	85	Very valid
10	Instructions are easy to understand	80	valid
11	There is an introduction / archipelago	80	valid
12	Systematic consistency of presentation	80	valid
13	Sequence / sequencing of presentation	81	valid
14	Easy presentation of instructions for use	82	valid
15	Completeness of the introduction	82	valid
16	Completeness of the contents	81	valid
17	Completeness of the cover	80	valid
18	Word / sentence readability (high readibility)	85	Very valid
19	Language compatibility with EYD	80	valid
20	Effectiveness of sentences / Avoiding ambiguity	80	valid
21	Consistent use of terms	81	valid
22	Language suitability with the development of students	85	Very valid
23	Attractive cover design	85	Very valid
24	URL / link consistency	80	valid
25	Proportional margin layout	80	valid
26	The accuracy of placing the title, subheadings, illustrations, and content of the material	80	valid
27	Match the color contrast blend with the background	80	valid
28	Font selection suitability	83	valid
29	Suitability of font size selection	81	valid
30	Suitability of font color selection	80	valid
31	The accuracy of using spaces between sentences	80	valid
Average percentage score		81.8	valid

Respondents in the individual trial are4th semester students of elementary school teacher education at the University of Muhammadiyah Malang for the 2020/2021 academic year, totaling 256 students. The purpose of implementing this teaching material product is to determine user responses, namely the responses of lecturers and students.

The results of student response data analysis can be seen in table 4. From the data analysis in table 4 and the analysis of comments given by respondents during the trial, it was found that the percentage of students' answers for each assessment component had an average score of 3.6 with a percentage of90% and are in qualification very practical.

Table 4: User responses (students)

No.	Aspect	Indicator	Score	Category
1.	Usefulness	Ease of use of media	4	Very practical
		Media easily accessible	4	Very practical
		Link / URL can be accessed	4	Very practical
		Availability of instructions for use	4	Very practical
		Instructions are easy to understand	3	practical
2.	Presentation	There is an introduction/archipelago	4	Very practical
		Systematic consistency of presentation	4	Very practical
		Sequence / sequencing of presentation	3	practical
		Easy presentation of instructions for use	3	practical
3.	Serving completeness	Completeness of the introduction	3	practical
		Completeness of the contents	3	practical
		Completeness of the cover	3	practical
		URL completeness	3	practical
4.	Design / Layout	Attractive cover design	4	Very practical
		Proportional margin layout	4	Very practical
		The correct placement of Title, subtitles, and illustrations	4	Very practical
		Match the color contrast blend with the background	4	Very practical
		Font compatibility	3	well
		Font size suitability	4	Very practical
		Font color suitability	4	Very practical
	Total Score		72	
	Average score		3,6	Very practical

Based on the validation results from content, media, and design experts, this digital sway teaching material is very feasible to be applied in online learning. After implementing the fourth-semester students studying and learning subjects in the PGSD study program, Muhammadiyah University of Malang. Every aspect and component of Sway's digital teaching materials received a positive response. These results are consistent with the research(Usodo et al., 2016)which explains that the application of this application can build a better, more interactive learning atmosphere, which can

increase student interest in participating in mathematics learning. Other similar studies were also conducted by(Sudarmoyo, 2018), (Suherman et al., 2019) and (Istiqomah, 2016) which describes the results of using the sway application that is effectively used in learning.

4. Conclusion

The Covid-19 pandemic has indeed had a significant impact in various aspects, especially education, but this situation has not dampened the enthusiasm of educators and students to continue carrying out teaching and learning activities online. Learning activities during the current COVID-19 pandemic must be applied to a variety of learning activities because this learning is carried out monotonously, where students and educators are only in front of laptops or cellphones. In this case, educators must continue to provide quality learning so that students do not fall behind in learning and equip students to think critically, creatively, productively, and be able to develop their potential even in an emergency. With interesting and varied learning media, it will attract the curiosity of students so that it triggers their enthusiasm for learning. In the era of the 4.0 industrial revolution, various online media and existing technology have become a way to continue to carry out education. As an educator, one of its components must be able to adjust and utilize this technology for the benefit of learning, because it cannot be denied that with the development of technology there are also negative elements. Therefore, based on the analysis of learning needs during the COVID-19 pandemic, the development of digital teaching materials has emerged. with sway using the ADDIE model with trials on 4th-semester students of the University of Muhammadiyah Malang. The ADDIE model was chosen because the model has clear and easy-to-understand procedures. ADDIE has 5 stages, namely (1) Analyst (2) Design, (3) Development, (4) Implementation or execution, and (5) Evaluation/feedback (Evaluation). The results showed a positive response to aspects of usefulness, presentation, presentation completeness, design/layout. So that with several advantages and positive responses from the respondents, this learning model is proven to be effective and can be used properly.

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