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Research paper



The Development of Interactive Media Based Wirdah Learning Model

Wirdah Yanti Nasution[1], Efendi Napitupulu[1], Baharuddin[1], Janner Simarmata[1]

[1] *Department of Educational Technology,Universitas Negeri Medan, Medan, Indonesia*
**Corresponding author E-mail:napitupuluefendi@unimed.ac.id*

Abstract

This study aimed to find out the feasibility of interactive media-based learning model and the effectiveness of interactive media-based learning model in m Enhancing student learning outcomes. This learning product development model was a model structured in a programmed and systematic sequence and fulfilled the characteristics of students in learning. The results showed (1) test of Civics subject matter experts were at very good qualifications of 96.1%, (2) test of design experts with excellent qualifications of 97.27%, (3) test of software experts at very good qualifications 96 , 1%, (4) individual trials were in excellent qualifications of 92.3%, (5) small group trials were in very good qualifications of 93.9%, (6) field trials were in very good qualifications of 97, 61%. The results of testing the hypothesis proof that there were significant differences between student learning outcomes in the control class and the experimental class. This was indicated by the results of data processing $t_{observed} = 1.97$, at the significance level $\alpha = 0.05$ $t_{table} = 1.69$. It was concluded that interactive media-based learning models that were developed were feasible and effective to improve Civics learning outcomes.

Keywords: *Civics Learning Outcomes, Learning Models, Interactive Media, Wirdah Model*

1. Introduction

Media was one component of communication that was all forms used for the process of information distribution [1], [2]. Communication plays an important role in learning. Learning media is everything that can be used to convey messages or information in the teaching and learning process so that it can stimulate students' attention and interest in learning [3]. Interactive learning media has many advantages such as presenting information in the form of text, images and sounds simultaneously [4].

There were four (4) benefits of interactive media teaching, namely: (1) to clarify the presentation of the message so that it is not too verbalistic, (2) overcome the limitations of space, time, and sensory power, (3) can overcome the passive nature students, and (4) make it easier for teachers to convey the contents of the subject matter [5].

Some of the problems that occur in learning in the world of education are (1) most of the learning concepts that are carried out are abstract, (2) limited time available to teach material to be delivered and (3) lack of participant participation in the learning process, the problem can be overcome by using concrete models of teaching materials in the form of images, animations or videos delivered by the teaching staff and applying learning approaches that involve students in the learning process that can maximize the participation of students in the process learning so that the limitations of time constraints can be overcome, as well as providing teaching materials that can be studied individually by students outside the classroom [6]. The results of various studies have also shown that learning to use interactive media was able to increase students' interest and learning outcomes towards the lessons learned. Interactive multimedia based learning models can change students 'mindset which aims to shape students' creative thinking skills [7].

The development of interactive multimedia-based learning models was needed in the class on the availability of educator resources and students who have the ability and motivation to interact in learning and support learning devices and networks that can be accessed by students in the classroom and interactive multimedia learning models that were developed effectively in improving student learning outcomes [8].

The use of interactive learning media allowed students to adjust speed in mastering the lesson. A student who has a higher learning speed would be faster to complete his learning activities while students who have slow learning speed would complete their activities according to their respective abilities. Unlike the direct way of learning, the speed of learning comprehension was determined by the teacher. Seen clear that the learning media was very influential in the effectiveness and efficiency of learning.

The development of computer technology, especially in the field of devices to support learning programs, computer systems can convey learning individually and directly to students by interacting with subjects programmed into computer systems, this was called computer-based learning.

2. Research Method

The research method uses a research and development approach [9]. The process was carried out through stages: preliminary study, development and testing. The instrument used in the preliminary study phase was literature study and field survey; the model development stage was carried out in the form of drafting the initial draft of the model, limited trials, and small group trials and field trials and testing the effectiveness of the development of interac-

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tive media based learning models by comparing the results of the control class with the experimental class.
ADDIE model consisted of five phases: analysis, design, development, implementation and evaluation. In this study the author designed WIRDAH learning models (Weakness, Introspection, Readiness, Doing, Assessment, Happiness) which were expected to accommodate Active, Innovative, Creative, Effective and Fun (PAIKEM) learning.
The syntax of WIRDAH learning model can be seen in Figure. 1.

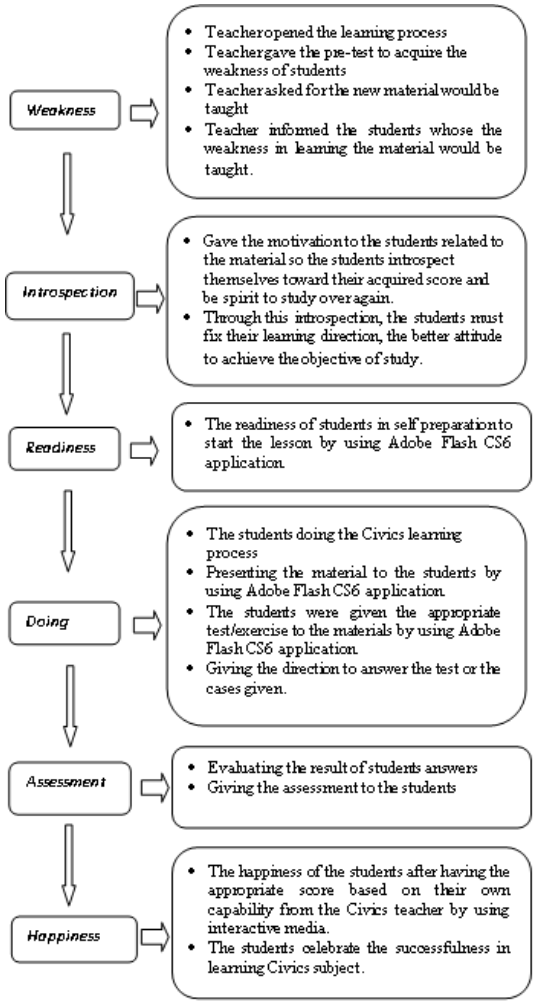


Fig.1: The Syntax of WIRDAH learning model

3. Result and Discussion

The results of the assessment by material experts, learning design experts and software engineers on each aspect of assessment as a whole were determined by the average score in their respective categories. The assessment results were then analyzed to determine the feasibility of learning model developed.
The percentage of the average of the results of research material experts, learning design experts and expert software experts can be seen in the table 1.

Table 1: The Result Of Percentage Average Of Material, Design, And Software Experts

NO.	Categorization	Percentage	Criteria
1	Material expert	96.1%	Very good
2	Design expert	97.27%	Very good
3	Software expert	91.07%	Very good

To find out whether this interactive media-based learning model was effective in improving Civics learning outcomes, a quasi-experimental test was done by comparing the initial test scores with the final test students tested by t-test.

1. Initial Test Result Data

Test of the effectiveness of interactive media-based learning models conducted in SMP N 3 Panyabungan as a control class, obtained data that the value range was 3, the lowest value was 17 and the highest value was 36. The average value was 25 and the mode value was 25.25 and the median was 24, 8. The initial test data for the control class pre-test can be seen in the following table 2.

Table 2: Distribution of the control class pre-test frequency conducted in smp 3 panyabungan

No.	Interval Class	Frequency	Relative Frequency (%)
1	17-20	7	21.87
2	21-24	8	25
3	25-28	10	31.25
4	29-32	4	12.5
5	33-36	3	9.37
		32	100

The distribution of Civics learning outcomes pre-test conducted in the experimental class, namely in SMP N 5 Panyabungan, obtained data that the range of values was 3, the lowest value was 18 and the highest value was 37. The average value was 41 and the mode value was 41.75 and the median was 41.5 The initial test data for the experimental class pre-test can be seen in the following table 3:

Table 3: Frequency Distribution Of Initial Tests Of Learning Outcomes Of Smp N 5 Panyabungan

No.	Interval Class	Frequency	Relative Frequency (%)
1	18-21	7	21.87
2	22-25	7	21.87
3	26-29	11	34.37
4	30-33	4	12.5
5	34-37	3	9.37
		32	100

2.Final Test Result Data

Description of Civics learning outcomes taught in the control class at SMP N 3 Panyabungan which has a range of 3 values of the lowest 21 and the highest score of 50. The average value was 33.62 and the mode value was 34.31 and the median was 33.40. The results of the post-test control class data can be seen in the following table 4:

Table 4: Frequency Distribution Of The Final Test Of Learning Civics In The Control Class In Smp N 3 Panyabungan

No.	Interval Class	Frequency	Relative Frequency (%)
1	21-26	7	21.87
2	27-32	7	21.87
3	33-38	11	34.37
4	39-44	4	12.5
5	45-50	3	9.37
		32	100

Based on the data in table 4.16 it can be explained that with an average of 33.62 in the 33-38 interval class with a percentage of 34.37%, then 21.87% above the class average score and 9.37% below the average score-class average. Furthermore, the histogram graph of Civics learning outcomes can be seen in figure 2.

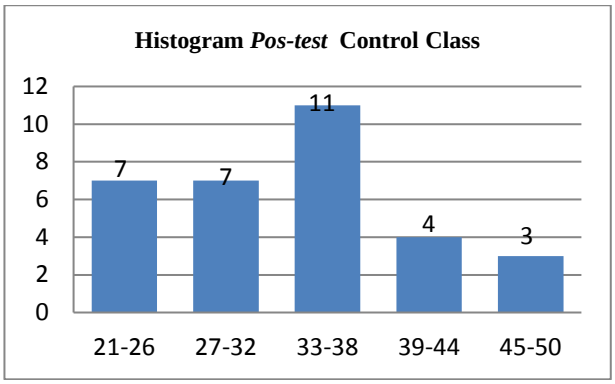


Fig. 2: Histrogram of Post-Test Control Class

The distribution of Civics Pos-test learning outcomes conducted in the experimental class, namely in SMP N 5 Panyabungan, obtained data that the value range was 3, the lowest value was 26 and the highest value was 58. The average value was 41 and the mode value was 41.75 and the median was 41.5 The final test data for the posttest experimental class can be seen in the table 5.

Table 5: Frequency Distribution Of The Final Test Learning Outcomes Of Smp 5 Panyabungan

No.	Interval Class	Frequency	Relative Frequency (%)
1	26-34	6	18.75
2	35-40	8	25
3	41-46	10	31.25
4	47-52	4	12.5
5	53-58	4	12.5
		32	100

Based on the data in table 5 it can be explained that with an average of 41.78 in the interval class 41-46 with a percentage of 31.25% then 25% above the class average score and 12.5% below the average grade score . Furthermore, the histogram graph of Civics learning outcomes can be seen in Figure 3.

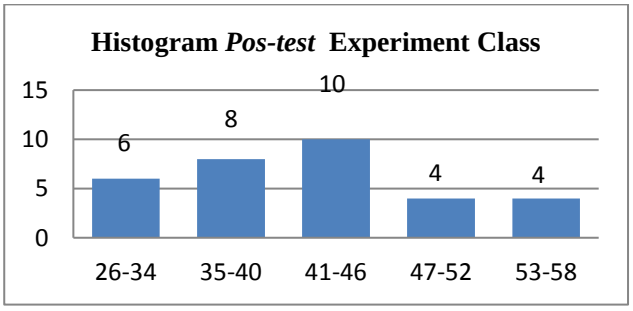


Fig.3: Post-Test Histogram of learning outcomes in the Expansion class

The development of this interactive media-based WIRDAH learning model uses the Adobe Flash CS6 application. This stage was the process of realizing what has been done at the design stage in the form of interactive media that was ready to be used. The things that were developed and already provided in interactive media consist of material that would be taught (Pictures, Sounds, Videos, Animations, Practice questions and so on) each consisting of 6 meetings. The capture of interactive media programs can be seen below:



Fig.4: Display the initial interactive media menu



Fig.5: Display the main menu of interactive media



Fig.6: Basic Appearance of material



Fig.7: Display of Material Exposure



Fig.8: Video Playback in Interactive Media

From the results of research conducted with the "WIRDAH" learning model there were differences in Civics learning outcomes between students who were taught using interactive media with students who were taught without interact media, ie from the calculation results obtained that the value of $t_{observed}$= 1.97 > t_{table} = 1.69, therefore it can be concluded that $t_{observed}$ > t table which

means "interactive media-based learning model developed to improve learning outcomes of Civics of SMP N Panyabungan".
So, the learning model that has been produced was effective for use in learning. This was in accordance with expert opinion and relevant research results as follows: (1) the advantage of using interactive multimedia in learning, the use of multimedia learning has the potential to improve learning. (2) the learning process using media was able to improve students 'high-level thinking skills and students' critical thinking skills because students are invited to respond and test the truth of their opinions when they respond in general. The ability of teachers to acted as motivators and elevators also greatly influences student learning outcomes because in interactive media-based learning students must be motivated to be fully responsible for their learning tasks. As an elevator, the teacher must always be consistent to provide feedback at the right time.

4. Conclusion

In this study concluded that from 3 Civics teachers and 32 students who became research respondents stated that interactive media-based learning models need to be developed in Civics subjects . The interactive media-based learning model developed included in very good categories with the percentage of research results for each material expert, design expert, and software engineering expert, each of which was 96.1%, 97, 27%, 96.1% , Model-based advocates distance developed by interactive media in improving student learning outcomes Civics. Based on the results of research on individual trials of interactive media-based learning models that were developed obtained the assessment of respondents with very good criteria with an average percentage of 92.3%. In the small group test obtained an average percentage of 93.9% in very good categories. In the trial of the interactive media-based learning model that was developed, it was obtained that the respondents' ratings were in the very good category with an average percentage of 97.61%.

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