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Development of Exe Learning Based E-Module with Whatsapp Application for Online History Learning to Increase Learning Result

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ABSTRAK

Saat ini masalah yang dihadapi siswa adalah kurang memahami materi yang disajikan guru akibat mewabahnya penyebaran virus corona, sehingga pembelajarannya dilakukan secara online dan pemahaman serta kesadaran sejarah menjadi menurun. Ada beberapa aplikasi yang dimanfaatkan untuk pembelajaran online, salah satunya adalah WhatsApp. Tujuan penelitian ini adalah mengembangkan E-module berbasis exe-learning dengan aplikasi WhatsApp untuk pembelajaran sejarah secara online untuk meningkatkan hasil belajar sejarah siswa. Penelitian ini menentukan kelayakan produk yang dikembangkan serta respon siswa terhadap produk tersebut. Metode penelitian dalam mengembangkan produk memakai model ADDIE (Analisa, Desain, Pengembangan, Implementasi, Evalusi). E-Modul yang dikembangkan, diasesmen dan berdasarkan asesmen ahli dan uji coba e-modul yang dilakukan di tingkat SMA telah memenuhi kriteria kelayakan dengan presentase 98% dari ahli materi dengan skor 49. dan skor 53 dengan presentase 88,3% dari ahli media, serta skor 674 (89,86%) dan 1375 (91,53%), dari uji coba kelompok kecil dan besar, maka media dinyatakan cocok untuk digunakan dalam pembelajaran sejarah di tingkat Sekolah Menengah Atas. Pada uji efektifitas juga menunjukan peningkatan dengan perbandingan kelas kontrol mendapatkan 67% ketuntasan, sendangka kelas eksperimen dengan tingkat ketuntasan 90%.

ABSTRACT

Nowdays students barely understand the content presented by the teacher due to the outbreak of the coronavirus, so learning was carried out online. Several applications are used for online based-learning. Therefore to solve that problem this research aims to develop e-modules based on exe learning with the WhatsApp application for online history learning worthy of research. This research decide the feasibillity of the product being developed and the student's response to the product. The research method for developing products uses the ADDIE model. The e-module developed was assessed and based on expert assessments. E-module trials met the eligibility criteria with a percentage of 98% from material experts with a score of 49 and a score of 53 with a percentage of 88.3% from media experts, and a score of 674 (89, 86%) and 1375 (91.53%), from small and large group trials, then the media is declared suitable for use in learning history at the senior high school level. This shows that the Whatsapp application-based exe-learning media can improve learning results. The effectiveness test also shows an increase with a comparison of the control class getting 67% completeness, compared to the experimental class with a 90% completeness level. This showed that the Whatsapp application-based exe-learning media can improve learning results.

1. INTRODUCTION

Learning is a system that includes various components and is interrelated with one another. The organized learning process can use various media and teaching materials. For this reason, learning materials are designed so that students can gain a complete understanding. Learning is an activities or method carried out by someone to carry out a learning activity (Pratama et al., 2020; Roemintoyo & Budiarto, 2021). A learning activity is a process involving a two-way relationship between a student and a teacher, or in the other word, teachers and students participate in educational communication. Learning process can take place outside or inside the school. Educational communication is unrestricted to the transmission of scientific values, and also to the transmission of life values as well (Permatasari et al., 2019; Zou et al., 2021). One of them is the use of e-module media to achieve the learning objectives optimally.

One is a module or e-module in a website format with the WhatsApp (WA) application (Kusumawati, O Dan Nugroho, 2019; Riananda, 2016). WhatsApp provides extraordinary appeal, there has been a lot of transition from the previous social media to this social media. People think that WhatsApp is a

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reliable and perfect vessel for communication, channeling feelings and thoughts. WhatsApp has a very rapid pace of development, breaking through the walls of communication barriers (Hasiru et al., 2021; Sidiq, 2019). But in contradictions, pupils was using WhatsApp almost every single day restless without thinking of its bad effects, and unfortunately they passively use it for learning. Students realize that a WA Group has the potential for continuous learning and have a positive effect towards the application as a learning software (Assidiqi & Sumarni, 2020; Hasiru et al., 2021).

Previous research has explained that WhatsApp has many benefits. As previous study said that using WA to improve English teaching and learning collaboratively (La Hanisi et al., 2018). There are also researches on WhatsApp social media application for active learning (Dahdal, 2020). This study finds that the usage of WhatsApp as part of laerning platform tasks can encourage active learning and promote collaborative learning before and after lectures. Previous study said that Whatsapp and G-Drive can affect the learning of preschool students (Moreno-Guerrero et al., 2020). This research conducted on WhatsApp and G-Drive to provides many theoretical implications to these educational apps improvement and facilitate active and collaborative learning in this latest scheme. In particular, these learning tools enable supported learning and individualized teaching methods, which makes them more interesting for learners. And the last is previous study reveal that using WhatsApp groups (WAG) for educational principle: Finding the academic use of WhatsApp group among students (Baishya & Maheshwari, 2020). The conclusion was the presence of the teacher has essential effects on the discussion. They said that these WAG can be a burden and consume a lot of time, but these WhatsApp groups not only give important message about classes, exams, holidays, etc.

Based on the explanation above, there is no doubt that digital technology plays an important role in modern education. Mobile WhatsApp technology is very valuable in this regard as it is widely used in online teaching in educational world. It gives more options and opportunities for students within the framework of online education (Nanda, 2019; Oriji, A., & Anikpo, 2019). With WhatsApp as an application and internet-based platform, we can collaborate with other media such as modules. With advances in science and technology, teaching materials do not only come from books but can also come from the internet, scientific writing books, electronic modules (e-modules), and e-books that ease students to achieve learning objectives (Aufa et al., 2021; Ningtyas & Jati, 2018). Modules are teaching contents designed using simple sentences that allow students to understand them easily. The purpose of using learning modules is to give students the ability to learn on their own without the help of an educator. At the same time, educators function as mentors and motivators in learning (Arthur et al., 2020; Putra et al., 2017; Syahrial et al., 2022). E-module is an electronic learning resource that promotes an effective and efficient learning process.

This was proven by previous research that e-modules effective in various way such as previous research said that The E-Module can improve the cognition, interest and motivation of 5th grade students (Asrial et al., 2020). Therefore, the research results indicate that the use of ethnoconstructivist The e-modules of the learning process are grouped into two categories, and the developed e-modules are acceptable for use in elementary schools (Permana & Jayanta, 2019; Seruni et al., 2020; Sidiq, Ricu., 2020). Other study state learning outcomes were maintained and improved after using the E-module as an alternative learning resource during the pandemic (Purnamasari et al., 2020). Academics activities during the coronavirus pandemic less effective as the pandemic requires students to stay at home instead of school. Moreover, several parents disagree and protest about the destiny of their children who do not receive an adequate education (Mahadin et al., 2022; Purnamasari et al., 2020).

Therefore, e-modules are developed so that teachers can act as facilitators optimally and students can learn independently. E-modules also has independence in maximizing learning activities by providing electronic teaching materials encourages students to independently solve learning problems. E-Modules can replace the role of the teacher. E-Modules must also provide clear information according to student knowledge. Based on this discussion, the development of e-modules based on exe-learning with the WhatsApp application for online history learning is feasible for research.

2. METHODS

Making exe-based learning e-modules with the WhatsApp is a kind of research and development that refers to the ADDIE model. This model is used to obtain specific products with proven effectiveness or to improve existing products. ADDIE is program to develop and validate products (Sugiyono, 2019). Development research is a method of testing the effectiveness of product development results. This model is very suitable for use in e-modules and other types of product development. The ADDIE model is used because it is simple, easy to understand, and has a systematic structure.

To collect data in the preliminary stage are Content analysis, intended through analyzing content in the curriculum, documents, history textbooks, and analysis related to history lessons. Observations

conducted to obtain information on the conditions and problems of learning history. Then a public opinion survey was conducted by interviews with history teachers about the availability of history books.

Data collected from preliminary research results were analyzed according to the type of data obtained. Data from the analysis of documents and literature were analyzed descriptively and qualitatively. While the data collected based on the instruments were analyzed using a percentage with a Likert scale.

3. RESULT AND DISCUSSION

Results

Analysis Stage

The analysis is intended to determine the basis of the media to be developed. Analysis of student needs as a reference in developing teaching materials to be used according to student needs. To find out the school's needs by observing and interviewing the principal, deputy head of student affairs, and history teacher. Apart from that, Content Analysis materials for determining the content required for the product being developed are compatible with KD 3.7 and KD 4.7. The learning material is the event of the proclamation of Indonesian independence.

Design Stage

Design is carried out by formulating goals according to core and basic competencies, determining strategies, compiling evaluations and other learning tools. After that, a design is formulated that is adjusted to the needs and purposes that have been determined. The next step is to develop the media as follows, 1.) The development of the e-module contains material from the proclamation of Indonesian independence in word form. 2.) Designing prefaces, core competencies, essential competencies, learning guides, glossaries, backgrounds, descriptions, objectives, materials, questions, answer keys, and bibliography. 3.) Open the Exe Learning application. The design of E-Module is show in Figure 1, Figure 2, Figure 3.

Figure 1. Learning Application Home Display

Figure 2. Exported E-Module

Figure 3. Exercise Display

Development Stage

Media development is made based on designs that have been compiled at the design stage. The results of expert validation after the media was designed is show in Table 1, and Table 2.

Table 1. Validation Results by Material Expert

No.	Item	Score
1	The carrying capacity of the components / contents of the module	5
2	Module accuracy	5
3	Concept accuracy	5
4	Conformity of facts and data	4
5	Descriptions and exercises	5
6	Material order	5
7	Presentation of material in the media	5
8	Language used	5
9	Sentence used	5
10	Material suitability	5
	Total	**49**

Table 2. Validation Results by Media Expert

No.	Item	Score
1	Images, symbols, background and cover colors	4
2	Cover Design	4
3	Clarity of letters	4
4	Use of view layouts	4
5	Images with appropriate text are used	4
6	Font color, image, font size and font	4
7	Ease of language	5
8	Ease of use of the E-Module	5
9	E-Module Operation	5
10	E-Module Program	4
11	Ease of E-Module for independent study	5
12	Benefits of E-Module	5
	Total	**53**

Implementation Stage

The trial process of history modules was carried out at SMA 6 Musi Rawas with 10 people for small groups and 20 people for large groups which were distributed via the WhatsApp application students. The result of Small group trial is show in Table 3.

Table 3. Small Group Trial

No.	Name	Item															Total Score
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
1	A	5	5	5	5	5	4	4	4	5	5	4	5	4	5	4	69
2	AS	5	4	4	5	5	4	5	5	5	5	4	5	5	5	5	71
3	FHP	4	4	4	5	5	3	4	3	4	4	4	5	5	5	5	64
4	I	5	5	5	4	4	4	5	4	5	5	4	4	4	5	4	66
5	LR	5	5	4	5	5	4	5	5	4	5	5	4	4	4	5	69
6	MW	4	3	4	5	5	4	5	5	4	3	5	5	5	5	5	67
7	PAB	4	4	5	5	5	4	5	5	4	5	4	5	5	5	5	68
8	PB	4	3	4	5	5	4	5	5	4	3	5	5	5	5	5	67
9	S	4	3	4	5	5	4	5	5	4	3	5	5	5	5	5	67
10	YKS	4	4	4	5	4	5	5	4	5	5	5	4	5	5	5	66
								Total									**674**
								Percentage									**89.86%**
								Info									**Very Good**

Base on Table 3, small group trial total score obtained 674/750 X 100% = 89.86% is very good. The large of group trial is show in Table 4.

Table 4. Large Group Trial

No.	Name	Item															Total Score
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
1	AGS	5	4	3	4	5	4	4	4	5	4	4	4	4	4	4	62
2	APS	4	5	5	4	5	4	5	4	5	5	5	4	4	5	4	68
3	B	4	5	4	5	5	4	5	5	4	5	5	4	4	5	4	68
4	BS	5	5	4	5	5	4	5	5	4	5	5	4	4	4	5	69
5	DF	5	4	5	5	5	4	4	5	5	4	5	5	5	4	5	70
6	DP	4	3	4	5	5	4	5	5	3	5	5	5	5	5	5	68
7	EF	4	5	3	5	4	5	4	5	5	5	5	5	4	5	4	68
8	HF	4	4	4	5	5	4	5	5	5	5	5	4	4	5	4	68
9	H	5	4	5	4	5	4	5	4	5	4	5	4	4	5	5	68
10	IS	4	5	4	5	4	5	5	4	5	5	5	5	4	5	4	69
11	JP	4	5	5	4	5	4	5	4	5	5	5	4	4	5	4	68
12	KWP	4	5	4	5	5	4	5	5	4	5	5	4	4	5	4	68
13	MAP	5	5	5	4	4	5	4	4	5	5	4	5	5	5	5	70
14	M	4	4	4	5	5	4	5	5	5	5	5	4	5	5	4	69
15	R	5	4	5	4	5	4	5	4	5	4	5	4	4	5	5	68
16	RH	5	5	5	5	5	4	4	5	5	5	5	5	5	5	5	73
17	ST	5	5	4	5	5	5	4	5	5	4	5	5	5	5	5	72
18	TU	5	4	4	5	4	5	4	5	5	4	5	4	5	5	5	69
19	TW	5	5	4	5	4	4	5	5	5	4	5	4	5	5	4	69
20	WH	5	4	5	5	4	4	5	5	5	4	5	4	5	5	4	69
								Total									**1.375**
								Percentage									**91.53%**
								Info									**Very Good**

Base on Table 4, The large of group trial total score obtained 1.375/1500 X 100% = 91.53 %. So that is can assume it related to very good category.

Evaluation / Efffectiveness Test

Then based on data from the implementation stage, an evaluation stage is held which includes product effectiveness testing. At this stage of effectiveness it aims to see the effectiveness of the exe-learning media applied to the control class and the experimental class. The use of media has been adjusted to the learning implementation plan. Learning activities in the experimental class use exe-learning media. While the learning activities in the control class use power point media.

Measuring the effectiveness of the media on student learning outcomes using pre-test and post-test. The pre-test test was given at the time before the learning activities were carried out in the two class groups, namely the Experimental (IPS 1 Class) and control (IPS 2 Class) groups. This aims to determine the initial ability of students before the treatment is carried out. Whereas the post test was carried out at the time after the treatment was carried out. This aims to see the level of achievement of student learning outcomes based on cognitive results. Furthermore, the results of the pre-test and post-test of the two class groups were compared to determine achievement based on the research object. Measurement of the ability of learning outcomes is measured by using questions. the category determines the success of student research both individually and classically if the learning outcomes are above 85%. Then, for the completeness value of history learning outcomes, each student must reach a score of 70. The acquisition of pretest and posttest scores for historical daily tests in the experimental class is show in Table 5.

Table 5. Pre-Test and Post-Test Scores on Experimental Class History Learning Outcomes

No.	Name	Score			
		Pre-Tes	**Info**	***Post-Tes***	**Info**
1	AP	85	Achieved	90	Achieved
2	ASR	75	Achieved	65	Not achieved
3	DLG	60	Not achieved	75	Achieved
4	DM	60	Not achieved	65	Not achieved
5	DWN	60	Not achieved	75	Achieved
6	EM	70	Achieved	80	Achieved
7	FAS	55	Not Achieved	60	Not achieved
8	GS	70	Achieved	85	Achieved
9	HW	75	Achieved	85	Achieved
10	HW	60	Not achieved	70	Achieved
11	ISM	65	Not achieved	80	Achieved
12	LH	85	Achieved	80	Achieved
13	LYA	75	Achieved	75	Achieved
14	MAL	70	Achieved	75	Achieved
15	MTP	80	Achieved	85	Achieved
16	NFF	70	Achieved	75	Achieved
17	NRP	80	Achieved	90	Achieved
18	NS	75	Achieved	80	Achieved
19	PES	75	Achieved	75	Achieved
20	RDF	70	Achieved	75	Achieved
21	RO	75	Achieved	75	Achieved
22	SF	60	Not achieved	75	Achieved
23	SK	75	Achieved	80	Achieved
24	SNP	70	Achieved	75	Achieved
25	TCR	60	Not achieved	84	Achieved
26	TL	65	Not achieved	85	Achieved
27	TN	75	Achieved	80	Achieved
28	TP	65	Not achieved	80	Achieved
29	WPS	65	Not achieved	85	Achieved
30	Y	70	Achieved	75	Achieved
Total		**19 Students Achieved**		**27 Students Achieved**	
Achieved Percentage		**63.3% Achieved**		**90% Achieved**	

Based on Table 5, it can be seen that there is a difference between the acquisitions of history test scores in the Experiment class (IPS 1) at the time of the pretest there were only 19 students who passed or 63.3% who completed history lessons. Whereas after being given the implementation in the post-test there was an increase, namely 27 students completed or 90% of students achieved. The acquisition of pretest and posttest scores for historical daily tests in the control class is show in Table 6.

Table 6. Pre-Test and Post-Test Scores on Control Class History Learning Outcomes

No.	Name	Score			
		Pre-Test	**Info**	***Post-Test***	**Info**
1	AS	75	Achieved	80	Achieved
2	AY	70	Achieved	75	Achieved
3	ASZ	65	Not Achieved	70	Achieved
4	A	75	Achieved	80	Achieved
5	AAL	65	Not Achieved	70	Achieved
6	AAN	75	Achieved	75	Achieved
7	BMZ	60	Not Achieved	65	Not Achieved
8	DAS	65	Not Achieved	60	Not Achieved
9	DMH	70	Achieved	75	Achieved
10	EBS	60	Not Achieved	65	Not Achieved
11	FR	65	Not Achieved	60	Not Achieved
12	FN	75	Achieved	80	Achieved
13	GRG	80	Achieved	75	Achieved
14	MRS	75	Achieved	70	Achieved
15	MS	75	Achieved	80	Achieved
16	MAM	65	Not Achieved	60	Not Achieved
17	MA	60	Not Achieved	65	Not Achieved
18	MI	80	Achieved	85	Achieved
19	NF	80	Achieved	75	Achieved
20	NVD	75	Achieved	80	Achieved
21	NH	75	Achieved	70	Achieved
22	RM	60	Not Achieved	65	Not Achieved
23	RR	80	Achieved	85	Achieved
24	RFS	75	Achieved	80	Achieved
25	S	65	Not Achieved	65	Not Achieved
26	SJP	60	Not Achieved	65	Not Achieved
27	SHM	70	Achieved	75	Achieved
28	SA	65	Not Achieved	60	Not Achieved
29	SM	70	Achieved	75	Achieved
30	YPA	75	Achieved	75	Achieved
Total		**18 Students Achieved**		**20 Students Achieved**	
Achieved Percentage		**60% Achieved**		**66.6% Achieved**	

Based on Table 6, it can be seen that there is not too much difference between the acquisition of history test scores in the control class (IPS 1) at the time of the pretest there were only 18 students who passed or 60% who completed history lessons. Whereas after being given the different media in the post-test there was a little improvement, namely 20 students completed or 66,6% of students achieved. Comparison table of effectiveness test is show in Table 7.

Table 7. Comparison of Effectiveness Test

No.	info	Completeness Percentage (%)	Information
1	Pretest Experiment	63.3%	63.3% > 60%
2	Pretest Control	60%	Pretest Experiment = Pretest Control
3	Postest Experiment	90%	90%>66.6%
4	Postest Control	66.6%	Postest Experimen>Postest Control

On the Table 7, it showed that there are differences between each test carried out in the experimental and control classes. Prior to implementation, the average percentage in the pretest was relatively not much different between the pretest control class and the experimental class, namely 63.3% and 60%. However, after the implementation of the post-test, there was a significant difference in effectiveness between the experimental and control classes, namely 90% of students passed the experimental class, while only 66.6% passed the control class. This shows that the Whatsapp Application-based exe-learning media can improve student history learning outcomes. To sum it all up, Figure 4 show histogram of a comparison between the effectiveness of both tests.

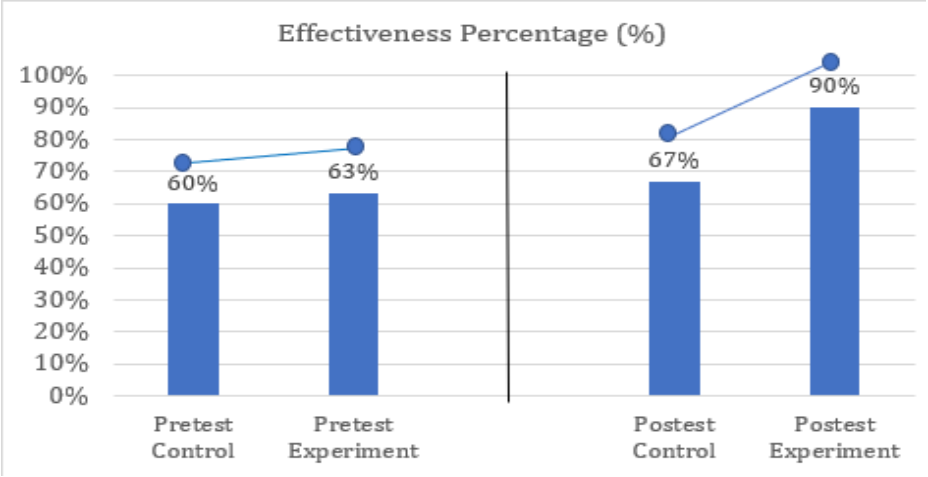

Figure 4. Effectiveness Histogram's Percentage Chart

Discussion

This research departs from the fact that history learning in class still experiences various obstacles, such as students not understanding the material caused by the distribution or delivery of teaching materials to students experiencing problems due to the spread of the corona virus. For this reason, it is necessary to develop exe-learning-based e-modules with the WhatsApp application to facilitate the delivery of subject matter to students.

The results showed that the Whatsapp application based Exe learning e-module had good quality and was effective as evidenced by the Validation Results by Material Experts and Media Experts who obtained very good results. The Exe learning e-module is also able to improve student learning outcomes. Through the use of technology in learning history can also increase student motivation and interest in learning. This is evidenced by the pre-test and post-test tests which showed a significant increase of students before and after using the Whatsapp application-based Exe learning e-module.

This research is in line with previous research which aims to determine the feasibility and attractiveness of media produced using the exe-learning application (Hayanum & Sari, 2022). The results of the assessment obtained were in the form of material feasibility of 92% with very feasible criteria, media eligibility of 91% with very feasible criteria, 95% of the response questionnaire results of 5 chemistry teachers at Langsa State Senior High School with very interesting criteria and the results of the questionnaire response of 15 students 98% with very attractive criteria. Based on the results of the assessment above, it can be concluded that the interactive e-module chemistry learning media for class X semester I using the developed exe-learning application is suitable for use in the learning process (Agustina & Efendi, 2021; Nurjayadi et al., 2021; Trilestari, K., & Almunawaroh, 2020).

Other research attempts to generate educational products in the form of electronic modules based on the Science Technology Society integrated Life Based Learning which was being validated by experts and improves learning history (Ma'rifatullah et al., 2021). Research result of e-module development indicates content expert validation obtains 82% categorized as eligible, language expert validation expert obtains 94% categorized as very eligible, design validation expert obtains 91.6% categorized as very eligible and users test score is 83.2 category very high. Based on this result, the electronic module based Science Technology Society integrated Life Based Learning is appropriate and effective as a learning source in history subject (Fahmi et al., 2021; Saraswati et al., 2019; Sopacua et al., 2020).

This research has important implications for online learning, especially in the midst of the COVID-19 pandemic which has forced many schools to switch to remote learning. The use of technology in learning not only helps students understand the material better, but can also increase interaction between students and teachers, as well as between students themselves. However, keep in mind that the use of technology in learning also has some weaknesses, such as accessibility problems, the inability to get direct feedback from the teacher, and technical problems. Therefore, it is important to consider all of these factors before deciding to use technology in the online learning process.

4. CONCLUSION

Product development obtained the following product quality: the total score obtained from media experts was very good. While material experts were obtain very good category. Trial obtained a score of

674 with a very good for a small group test. While the large group test obtained with very good category. Thus the products developed with the WhatsApp application can be used in history learning. The effectiveness test also shows an increase with a comparison of the control class compared to the experimental class with there is significant improvement on completeness level. This showed that the Whatsapp application-based exe-learning media can improve learning results.

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