Development of Economic E-Modules Based on Contextual Teaching and Learning (CTL) to Improve Learning Outcomes of Class XI Students of SMA Negeri 7 Medan

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Abstract. This study aims to determine: (1) the feasibility of economic e-modules based on Contextual Teaching and Learning to improve student learning outcomes in class XI-IPS SMA Negeri 7 Medan; (2) the effectiveness of economic e-modules based on Contextual Teaching and Learning to improve student learning outcomes in class XI-IPS SMA Negeri 7 Medan. This research is a research and development using the ADDIE model that has been adapted to the needs of the research. Data collection instruments used expert validation questionnaires, teacher response questionnaires and student response questionnaires. The population in this study were XI-IPS class students of SMA Negeri 7 Medan, XI-IPS 1 class totaling 36 students and XI-IPS 2 class totaling 36 students. The results of this study are: (1) economic e-modules based on contextual teaching and learning are feasible to use for students based on the validator's assessment with a very feasible category; (2) economic e-modules based on contextual teaching and learning are effective to use for grade XI-IPS students based on the results of the t-test where the 2 tailed sig value is 0.000 <0.05, then Ho is rejected and Ha is accepted so that there are differences before and after being treated using economic e-modules based on contextual teaching and learning.

Keywords: Economic E-Module Development, Contextual Teaching and Learning, Learning Outcomes

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1 Introduction

Education is an important aspect in determining the quality of resources related to learning, it is very important to have superior human resources. Especially during the Industrial Revolution 4.0 of the 21st century, which requires the use of information and communication technology in all aspects of life including the learning process[1]. The development of information technology has an impact on the world of education, the use of information technology in education makes it easier for teachers to deliver material and students to understand the subject matter. Every learning activity is required to use information technology or electronic media as a learning resource that supports learning activities, learning resources that are not innovative make students feel less motivated to learn and trigger low learning outcomes, The quality of learning is determined by educators, educators must have creativity and productivity in managing learning resources starting from planning learning resources, using learning resources and evaluating learning resources [2].

One of the learning resources is e-modules, e-modules will make it easier for students to access material because e-modules can be accessed from various devices such as smartphones, computers, tablets, laptops, or others. According to Rebecca et al [3], E-module it self is an innovative teaching strategy to help improve student success and learning outcomes that can help and direct students independently to be more active in their learning. The application of learning using E-modules is able to make students more active to explore their knowledge and learn independently [4]. Researchers developed e-modules with an approach that is considered the most appropriate, namely the contextual teaching and learning approach. Through a contextual approach, it helps students in connecting between theory and its application in real life so that it can improve their reasoning [5].

Canva is an online-based application that provides attractive designs in the form of templates, functions, and various categories provided [6]. The use of canva in making learning media has many advantages, namely: with canva we can create various types of designs that are equipped with various animation features, templates and page numbering which can encourage creativity and time efficiency for both teachers and students in activities to design attractive

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media that can be used as presentation materials, in the form of slides, mind mapping and posters [7].

From several previous studies, some of which were research by febriana , the development of contextual-based e-Modules was declared very feasible to use as learning media . Student learning outcomes with a contextual approach are better than student learning outcomes taught by conventional learning processes[8]. Based on this, this research was conducted to develop an economic e-module based on contextual teaching and learning to improve students' economic learning outcomes.

2 Method

This research uses the ADDIE learning design model. This development model has five stages, namely: Analysis, Design, Development, Implementation, and Evaluation (ADDIE). In the analysis step, curriculum analysis, learning material analysis and student needs analysis were carried out by conducting interviews. Then in the design step, activities are carried out to design e-modules that are packaged with the Canva application. At the development stage, e-module validation is carried out based on experts, namely material experts, media experts and learning design experts. The next implementation step is testing students to see the feasibility of the e-module and the evaluation step, namely evaluating the e-module until the stage of producing a product that is suitable for use in learning.

The research location was carried out at SMA Negeri 7 Medan in the even school year 2022/2023. The samples in this study were XI-IPS 1 class students totaling 36 students as the experimental class and XI-IPS 2 class students totaling 36 students as the control class. To test the feasibility of e-modules that have been developed, namely through the results of expert validation, namely material experts, media experts and learning design experts. Then to test the effectiveness of the e-module, the t-test is used which is an average difference test to determine whether there is a significant difference at a significance level of 0.05 with SPSS software.
The hypothesis formulated is:

Ho : $\mu 1 = \mu 2$ (there is no difference in the average value between the control class group and the experimental class).

Ha : $\mu 1 \neq \mu 2$ (there is a difference in the average value between the control class group and the experimental class).

In decision making, Ho is accepted if the significance value> 0.05, while Ha is accepted if the significance value <0.05. The calculation of the t-test uses a test of the difference between two population averages.

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[7] Vivi Aida Fitria and others, 'Using Canva to Support Online Learning Media for Students at Mahardika Karangploso Vocational School in Malang during the Pandemic Pemanfaatan Canva Untuk Mendukung Media Pembelajaran Online Siswa Siswi SMK Mahardika Karangploso Malang Di Masa Pandemi', *Jurnal Pengabdian Masyarakat*, 1.2 (2021), 75–82 <www.canva.com>.

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[9]

$$t = \frac{\bar{X}1 - \bar{X}2}{s\sqrt{\frac{1}{n1} + \frac{1}{n2}}} \quad (1)$$

Where:

$\bar{X}1$ = The average of the experimental class sample
$\bar{X}2$ = Control class sample mean
s = Standard deviation

3 Results and Discussion

3.1 Description of Research Results

This research is a research and development (Research and Development) using the ADDIE model which consists of several steps, namely Analysis, Design, Development, Implementation and Evaluation. R&D is a research method that is deliberate, systematic, aimed or directed at searching for, discovering, formulating, improving, developing, producing, testing the effectiveness of certain products, models, methods/strategies/ways, services, procedures that are superior, new, effective, efficient, productive and meaningful[10].

3.2 Analysis Step

The analysis stage in the ADDIE development model consists of several steps, namely: needs analysis, material analysis and student ability analysis. This analysis stage is carried out to find out the initial picture in order to obtain information about how the economic learning process is carried out at the research site. Where at this stage, researchers will conduct interviews with economics teachers and also to students related to how the economic learning process occurs in the class.

3.3 Design Step

The second stage of the ADDIE model is the planning stage. The planning stage is the creation of an e-module that comes from the previous analysis step, where the creation of this economic e-module uses Canva in its development stage. This stage is carried out so that the e-module developed obtains maximum results with several preparations, namely:

a) Read various sources of literature on the process and procedures for making e-modules.
b) Determining the learning objectives of the material to be developed in the e-module.
c) Preparing the materials needed in compiling e-modules, such as design, cover, material content, images, learning videos and other relevant supporting sources.
d) Preparing the application in designing e-modules, namely the Canva application.

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[10] Putra.

Fig. 1. Canva App.

e) Working display form of e-module making using Canva

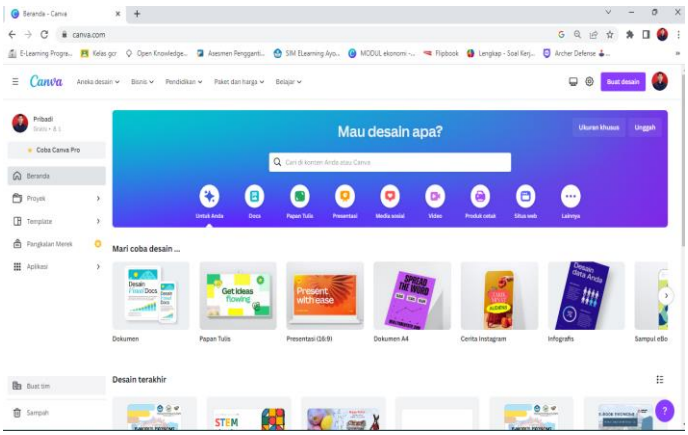

Fig. 2. Initial view of the Canva application.

f) Inserting each component that has been prepared previously for the preparation of e-modules to the next stage.

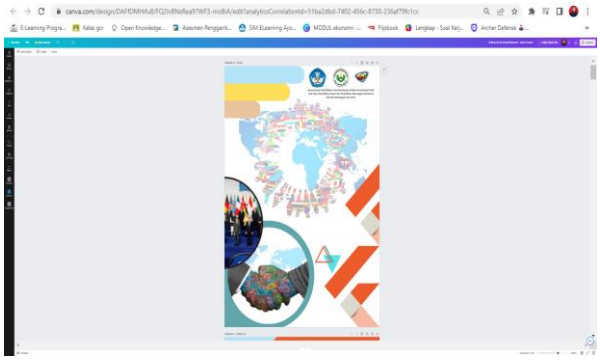

Fig. 3. Initial view of e-module cover design with Canva application.

g) Inserting the prepared supporting images into the canva application.

Fig. 4. Display of e-module design by entering images into the Canva application.

h) Inserting animations and supporting interactive videos that have been prepared into the Canva application.

Fig. 5. Display of e-module design by inserting animations and videos into the Canva application.

3.4 Development Step

The next stage in the ADDIE model is the development stage. This stage is an advanced stage of the design that has been planned and designed to become a product.The following is a display of the contextual teaching and learning-based economic e-module that will be developed on international economic cooperation material:

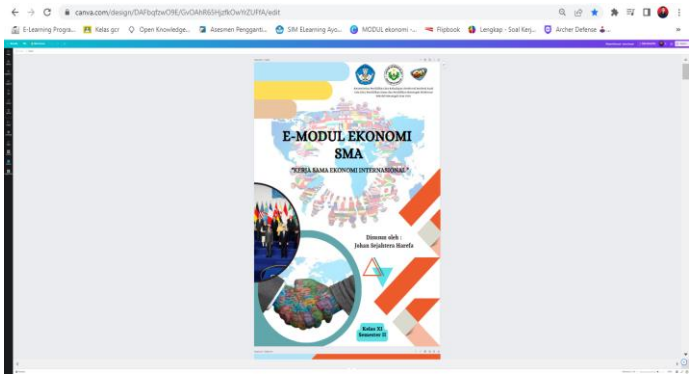

Fig. 6. E-Module Cover Display

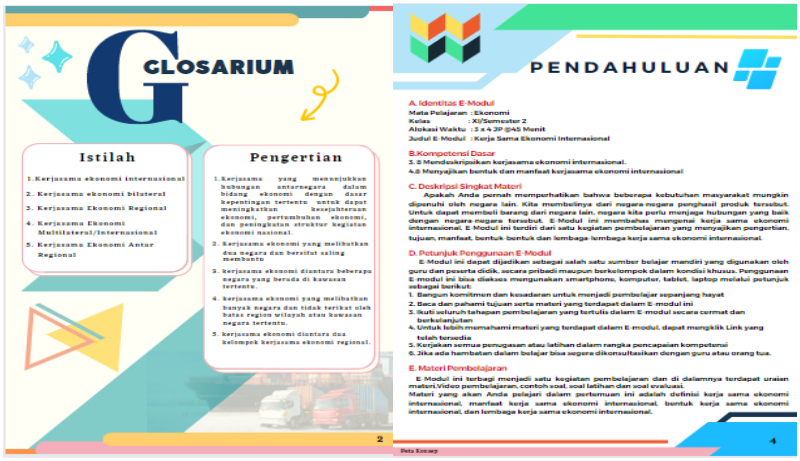

Fig. 7. Display of Glossary and E-Module Instructions for Use

Fig. 8. Display of Learning Activities and Materials in E-Modules

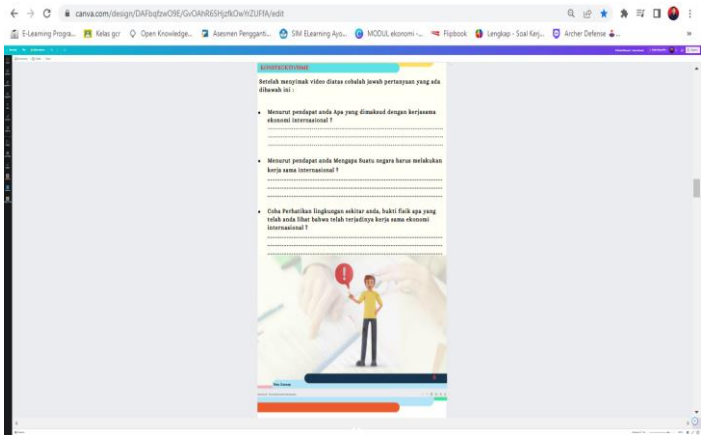

Fig. 9. Display of Contextual Teaching and Learning Components in E-Modules

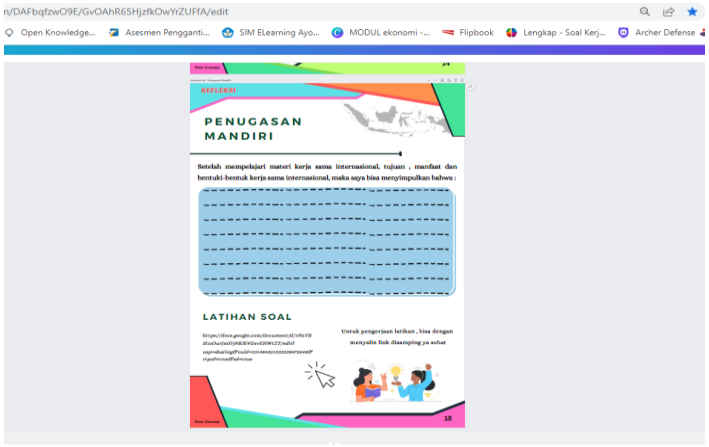

Fig. 10. Display of Self-Assignment and Practice Questions in the E-Module

Furthermore, the Contextual Teaching and Learning-based economic e-module was validated by material, media and design experts as follows:

a. Presentation of Data from Material Expert Validation Results

The material expert assessment questionnaire consists of aspects of material clarity, material quality, presentation of material content, presentation of self evaluation, contextual nature, contextual components. The average assessment by the material can be seen in the table below:

Table 1. Average Aspects of Material by Material Experts.

No	Material Aspects	Average Score	Criteria
1	Clarity of Material	4,00	Very Good
2	Quality of Material	3,20	Good
3	Presentation of Material Content	3,00	Good
4	Presentation of Self Evaluation	3,50	Very Good
5	Contextual Nature	3,00	Good
6	Contextual Components	3,42	Very Good
	Average Score	**3,29**	**Very Valid**
	Percentage	**82,29 %**	**Very Worthy**

Based on table 1 above, material experts provide an assessment of the Contextual Teaching and Learning-based economic e-module developed based on 6 aspects, namely: clarity of material, quality of material, presentation of material content, presentation of self evaluation, contextual nature, contextual components. The table shows that the material clarity aspect obtained an average score of 4.00 with a very good category, the quality of the material obtained an average score of 3.20 with a good category, the presentation of material content obtained an average score of 3.00 with a good category, the presentation of self evaluation obtained an average score of 3.50 with a very good category, the contextual nature obtained an average score of 3.00 with a good category and finally the contextual component obtained an average score of 3.42 with a very good category. Overall, the assessment given by the material expert stated that the economic e-module based on Contextual Teaching and Learning

developed had an average score of 3.29 with a percentage of 82.29% with a very feasible category.

b. Presentation of Data from Media Expert Validation Results

The media expert assessment questionnaire consists of aspects of display feasibility, ease of use feasibility, linguistic feasibility, usefulness feasibility, and graphical feasibility. The average assessment by the media can be seen in the table below:

Table 2. Average Media Aspects by Media Experts

No	Media Aspects	Average Score	Criteria
1	Display Feasibility	3,33	Very Good
2	Feasibility Ease of use	3,00	Good
3	Feasibility of Language	3,33	Very Good
4	Usability Feasibility	3,00	Good
5	Feasibility of Graphics	3,40	Very Good
	Average Score	**3,22**	**Valid**
	Percentage	**80,38%**	**Worthy**

Based on table 2 above, media experts provide an assessment of the Contextual Teaching and Learning-based economic e-module developed based on 5 aspects, namely: feasibility of display, feasibility of ease of use, feasibility of language, feasibility of usefulness and feasibility of graphics. The table shows that the display feasibility aspect obtained an average score of 3.33 with a very good category, the feasibility of ease of use obtained an average score of 3.00 with a good category, the feasibility of language obtained an average score of 3.33 with a very good category, the feasibility of usefulness obtained an average score of 3.00 with a good category and finally the feasibility of graphics obtained an average score of 3.40 with a very good category. Overall, the assessment given by media experts stated that the Contextual Teaching and Learning-based economic e-module developed had an average score of 3.22 with a percentage of 80.38% with a decent category.

c. Data Presentation of Design Expert Validation Results

The design expert assessment questionnaire consists of aspects of content suitability, presentation, graphics, language feasibility. The average assessment by design can be seen in the table below:

Table 3. Average Design Aspects by Design Experts

No	Design Aspects	Average Score	Criteria
1	Content Appropriateness	3,50	Very Good
2	Presentation	3,25	Good
3	Graphics	3,50	Very Good
4	Language Appropriateness	3,50	Very Good
	Average Score	**3,40**	**Very Valid**
	Percentage	**85,22%**	**Very Worthy**

Based on table 3 above, design experts provide an assessment of the Contextual Teaching and Learning-based economic e-module developed based on 5 aspects, namely: content suitability, presentation, graphics, language feasibility. The table shows that the aspect of content suitability obtained an average score of 3.50 with a very good category, Presentation obtained an average score of 3.25 with a good category, Graphics obtained an average score of 3.50 with a very good category and finally Language Feasibility obtained an average score of 3.50 with a very good category. Overall, the assessment given by learning design experts states that the Contextual Teaching and Learning-based economic e-module developed has an average score of 3.40 with a percentage of 85.22% with a very feasible category.

3.5 Implementation Step

In the application stage of the e-module that has been developed has been tested to students during the learning process at school, to find out the learning outcomes of students given a test (posttest) in the form of 20 multiple choice questions to students. The purpose of this test is to assess the effectiveness of the economic e-module developed by looking at student learning outcomes. The following is a table of student learning outcomes with contextual teaching and learning-based economic e-modules in class XI-IPS 1.

Table 4. Learning outcomes of students in class XI-IPS 1 Economic Subjects

Rate	Category	SMA Negeri 7 Medan	
		Frequency	Percentage
90-100	Very Good	5	13,88%
80-89	Good	18	50%
70-79	Fair	12	33,33%
<69	Less	1	2,77%
Total		36	100%

Based on table 4 above, student learning outcomes with economic e-modules based on contextual teaching and learning XI-IPS 1 SMA Negeri 7 Medan, where as many as 13.88% of students obtained scores > 90 with a very good category, 50% of students obtained scores > 80 with a good category, 33.33% of students obtained scores > 70 with a sufficient category and 2.77% of students obtained scores < 69 with a poor category.

3.6 Evaluation Stage

The last stage in the ADDIE model is the evaluation stage, where this evaluation stage is carried out at each stage of e-module development by researchers. Evaluation is carried out to obtain responses as well as suggestions and input which are then revised for the e-modules

developed. In the previous implementation stage, an evaluation was carried out related to the results of the economic e-module trial based on contextual teaching and learning developed in class XI-IPS 1 SMA Negeri 7 Medan. This evaluation stage was carried out to obtain student responses and learning outcomes after using the developed economic e-modules with the aim of obtaining the practicality and effectiveness of the economic e-modules.

3.7 Hypothesis Test

The second hypothesis test in this study was carried out using an average difference test or t test (independent sample t test) because the data were homogeneous and normally distributed and independent. The t-test is an average difference test to determine whether there is a significant difference in the average of the experimental class and control class with a significance level of 0.05 with SPSS software.

The hypothesis formulated is:

Ho : $\mu 1 = \mu 2$ (there is no difference in the average value between the control class group and the experimental class.)

Ha : $\mu 1 \neq \mu 2$ (there is a difference in the average value between the control class group and the experimental class.)

In decision making, Ho is accepted if the significance value is > 0.05, while Ha is accepted if the significance value is <0.05. The test results using the t test can be seen in the following table below:

Table 5. Experimental Class and Control Class t-Test Results

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Student Learning Outcomes	Equal variances assumed	.693	.409	6.892	48	.000	15.400	2.235
	Equal variances not assumed			6.892	46.679	.000	15.400	2.235

Based on table 5 above, the results obtained that Sig.2-tailed is 0.000 <0.05. Because the Sig.2-tailed value is less than $\alpha = 0.05$, Ho is rejected and Ha is accepted, namely there is a difference in learning outcomes before and after being treated using contextual teaching and learning-based economic e-modules. Thus it can be concluded that the economic e-modules developed are effective for use in the learning process.

4 Conclusions and Suggestions

4.1 Conclusions

Based on the results of the analysis and discussion that has been carried out in this study, the following conclusions can be drawn: Based on the results of the validation conducted by the validators and based on the results of the trial on the research subjects, it can be concluded that the economic e-module based on contextual teaching and learning developed is declared "feasible" to be used to improve student learning outcomes. Based on the test results of the average difference in the learning outcomes of experimental and control class students, the experimental class experienced a significant increase and difference as well as the acquisition of the average posttest score and the achievement of the experimental class KKM higher than the control class. This means that the economic e-module based on contextual teaching and learning developed is proven to be "effective" to be used to improve student learning outcomes.

4.2 Suggestions

The application of this research product in the form of contextual teaching and learning-based economic e-modules can be used as one of the sources to be used as a reference for development research relevant to this research and refined again, if it is useful and produces a higher quality product.

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