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The Development of E-module Teaching Materials for Economics Subjects toward SMA Swasta BPI Paluh Kurau Students

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Abstract
The development of teaching materials e-module is an effort to train students to learn independently. This research focused on the feasibility level of developing teaching materials e-module that were applied to class XI students for the 2020/2021 academic year at SMA Swasta BPI Paluh Kurau Hamparan Perak District. A quantitative method was used in this study. The population was all students of class XI at SMA Swasta BPI Paluh Kurau, Hamparan Perak District. To determine the feasibility level, a comparison was made between the experimental class and the control class. The data source results from a questionnaire given to the experimental class to see using e-modules on economic subjects, student test results, and experts. Validation test sheets include e-module design, material experts, and media experts. The procedures and steps of this research used the research model of Borg & Gall (2007: 589), which produces learning products. The result shows that the use of e-modules was in the good or feasible category for use. Overall, learning using e-modules is quite exciting and fun and exciting and easy to use by students. With e-modules, students can become more independent and accelerate learning but still need teacher guidance to have better understand phenomena and language problems in questions in the module.

Keywords
teaching materials; E-module; borg & gall model

I. Introduction

Education that is carried out from time to time is always changing in accordance with the times. Therefore, teachers as learning managers are required to be more creative and innovative in order to make learning outcomes more optimal. This is in accordance with the Law of the Republic of Indonesia Number 20 of 2003, Article 1 paragraph 19, concerning the National Education System (Sisdiknas) that education is a conscious and planned effort to realize a learning atmosphere and learning process so that students actively develop their potential to have spiritual, religious, self-control, personality, intelligence, noble character, and skills needed by themselves, society, nation and state. (Simorangkir, F and Sembiring, R. 2018)

Student learning outcomes are strongly influenced by the comprehension and ability to understand the teaching materials delivered by the teacher. The teaching materials used can be in textbooks and modules in printed or electronic form. Learning that takes place with the lecture method is less impressive in the minds of students. In addition, learning in class still uses textbooks and predominantly uses conventional learning when delivering material even though occasionally explaining it using the help of PowerPoint media. Students learn by memorizing written material, but a few days later forget the material that has been studied.

According to students, learning with the lecture method did not support students' ability to remember, so that the learning outcomes obtained were still low.

In improving students' ability, the teacher must find patterns of learning and participation from students so that learning is not monotonous and runs interactively. Lubis (2019) states that a good teacher should know and organize his class to get good learning outcomes. Student participation is one element of success in learning. The use of e-modules is expected to build independent attitudes and generate more participation from students in the learning process.

The COVID-19 pandemic situation that has hit the world, including in Indonesia, has caused and forced online learning. So that the use of electronic-based teaching materials is an effective teaching material media to use. At SMA Swasta BPI Paluh Kurau previously did not use e-books provided by the government, so the learning process became problematic because the learning situation was usually conventional through lectures, then suddenly turned into independent learning using teaching materials from the e-book. The current situation faced with the COVID-19 pandemic condition has caused teachers at the SMA Swasta BPI Paluh Kurau to provide teaching materials that students can access independently. Later, it can become alternative teaching materials that can continue to be used. As one of the teachers at the school, the researcher observed that e-learning teaching materials were needed. To make it easier for students to understand learning materials, the use of e-modules is more effective because e-modules contain teaching material and contain practice questions that are the creativity of the teachers who teach these subjects.

E-module contains the subject matter and practice questions at the end of the lesson to measure students' learning and assessments that will appear to solve the questions. So that it makes it easier for teachers and students to know the achievement of their competence, on the other hand, the task of a teacher is also more accessible with the available teaching materials. It is hoped that the e-module teaching materials can improve the learning outcomes at SMA Swasta BPI Paluh Kurau.

The researcher initiated the use of e-module teaching materials to help the learning atmosphere independently at the same time and find out the feasibility of using it. The choice of e-module is due to its more practical use and, more specifically, for use in the classroom. Several previous studies regarding the use of e-modules can be seen, such as Sidiq & Najuah (2020) research, which states that the use of interactive e-modules based on Android can effectively be used to improve learning outcomes in the learning process. In addition, Putra et al. (2017) found that the e-module selection was chosen so that teachers and students could quickly check and find out student grades.

Imansari & Sunaryantiningsih (2017), in their research, shows that the interactive e-module learning media made are suitable for use in the teaching and learning process in the classroom and can achieve the average value of student completeness, and the learning process is also in the good category. The development of technology in the world of education which is so fast and has become the basis of human life, has required people to develop their abilities to face global competition. Technology, which is increasingly at the pace of the digital era, needs to be used to design innovative learning media or as a source of information and others. The technology system will make it easier for teachers or students at school, following the benefits taken by each individual.

Furthermore, Hutahaean et al. (2019) stated that the rapid development of Science and Technology (Science and Technology) in this century brought a new paradigm to learning media in the world of education. Products from technology and information provide alternative learning media that students can use in digital forms, such as interactive e-modules. Furthermore, e-modules also have advantages as teaching materials stated by

Lestari & Parmiti (2020) that the developed Economy has advantages compared to the Economy printed module in general. Apart from being more cost and time-efficient, the Economics E-module is more interactive used to teach students so that learning in the classroom can be more active and influential.

E-module is a form of a percentage of learning material systematically arranged into the minor learning units to achieve specific learning presented in electronic form where animation, audio, making user navigation more interactive with this program. Electronic media that students can access has different advantages and characteristics. If in terms of its benefits, the electronic media itself can make the learning process more enjoyable, interactive, can be done anytime and anywhere and can improve the quality of learning.

It is hoped that with the development of an e-module in economics for class XI, students' cognitive outcomes such as knowledge, understanding, application, synthesis, and assessment are in line with the goals of education and teaching. Following the needs of teachers in overcoming problems in the learning process in Economics, there is a need for innovation in the development of a learning system that is more attractive, interactive and effective and efficient in its use.

Low student economic learning outcomes can be caused by several of them due to the lack of effectiveness of teachers as educators in designing and using teaching materials in appropriate learning and the lack of reference books used by teachers and students in learning material. In addition, the lack of efforts of teachers and students in designing instructional materials that can increase the attractiveness of students in learning material. Based on the results of interviews conducted with teachers in the field of economic studies, it is known that the low student learning outcomes are influenced by the low enthusiasm and activeness of SMA Swasta BPI students at Paluh Kurau in learning activities caused by teachers who are less able to design and use learning media and make learning teaching materials more attractive, which can be used as learning references by students.

Based on the problems above, there are many factors to improve student learning outcomes, one of which is developing teaching materials in digital form. One of the developments by utilizing information and communication technology is developing printed module teaching materials into electronic-based modules or better known as e-modules. This electronic module, it makes it easier for SMA Swasta BPI Paluh Kurau students to learn without the need for much money. E-module teaching materials will affect learning activities because they provide convenience and help educators prepare and carry out learning activities by utilizing current technology in the use of e-modules. What distinguishes the researcher's research from previous research is the use of e-modules packaged in the Adobe Flash software.

II. Research Methods

This research used quantitative methods. Mulyadi (2011) states that in quantitative research, the instruments used were predetermined and well organized so that they did not provide much opportunity for flexibility, creative input and reflexivity. The instrument commonly used was a questionnaire.

This research was a research development (Research and Development) because, in this research, teaching materials will be developed in e-modules in economic subjects for class XI SMA Swasta BPI Paluh Kurau. So that the final product of this research is in the form of digital teaching materials. The variables in this study were student learning outcomes, which have been seen from student learning outcomes before using the e-module Economics and student learning outcomes after using the Economics e-module.

This research was conducted at the SMA SWASTA BPI Paluh Kurau, Hamparan Perak Subdistrict, in Class XI for the 2020/2021 Academic Year. The time of this research started in December 2020 until March 2021. It was carried out in the development of teaching materials in the form of e-modules on Economics Subjects. According to Arikunto (2014: 13), "population is the totality of all possible values, the results of calculating or quantitative measurements regarding certain characteristics of all complete and clear group members who want to study their properties." The population was the whole research object, so the population in this study were students of class XI-A and XI B at SMA Swasta BPI Paluh Kurau, totaling 75 students.

Arikunto (2014: 174) states the sample is a portion or representative of the population under study. Meanwhile, according to Sudjana (2014: 159), the sample is part of the number and characteristics of the population. In this study, researchers took two classes from class XI of SMK Swasta BPI Paluh Kurau. The researcher took two classes as the sample because this research used the experimental research method, so the sample used was two classes, namely one class as the experimental class and one class as the control class.

This research was a Research and Development research by developing e-module economics teaching materials to measure the learning outcomes of class XI students of SMA Swasta BPI Paluh Kurau, so this research was categorized as the type of research used to develop this teaching material was Research and Development (Borg & Gall, 2007: 589) better known by the acronym R & D.

The procedures and steps for this research have been developed and produced e-module products to develop teaching materials. In learning technology, a description of the procedures and steps is developed by the research model of Borg & Gall (2007: 589) to produce a product. This research by Borg & Gall (2007: 772) includes the steps and main objectives in developing (1) developing the product and (2) testing the effectiveness of the product in achieving the goal. Product development of this E-module teaching material requires several steps in the process. The development process was developed by Borg & Gall (2007: 775). Borg and Gall's steps are shown in the following diagram

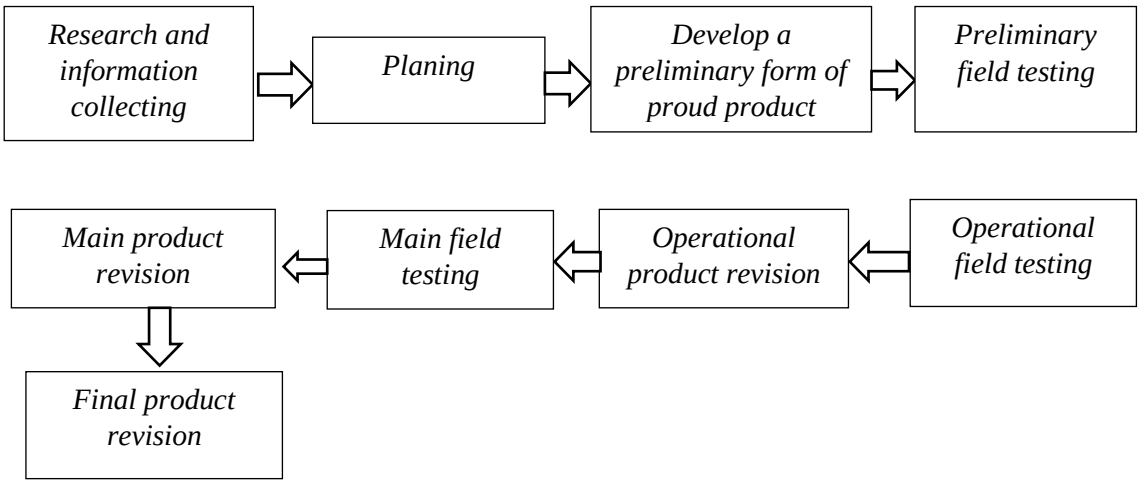

Figure 1. *Diagram of Development Process of Borg & Gall (2007)*

III. Result and Discussion

The result of the study showed the product in the form of an e-module in Economics. This teaching material is one of the digital learning teaching materials that can be used/read on a computer or laptop, or even a device. Research and information collecting (research and data collection through surveys), including in this step includes literature studies related to the problem being studied and prepared to formulate a research framework. Research makes observations, classroom observations and initial reports are carried out to obtain initial information to do E-Module development. The development of interactive teaching materials products is produced through several stages based on the model by Borg & Gall (2005).

3.1. Research and Information Collecting

The research stage and data collection were collected through a survey. In this step, a literature study has been carried out related to the problem being studied and prepared for formulating a research framework. At this stage, the researcher prepares the supporting components in the form of a syllabus and lesson plans to determine each predetermined topic's essential competencies and learning objectives. This stage includes making planning documents, consisting of teaching requirements, material texts, text documents for tests, and assessment documents. The need for material scripts includes syllabus, lesson plans (RPP) and material manuscripts in text and pictures. The test manuscript document includes a lattice question consisting of pretest and post-test, practice questions, answer keys and question discussion. Meanwhile, the assessment document is in the form of grids and questionnaires for material experts, media experts and student responses.

3.2. Planning E-module

In this stage, the selection of program objectives, materials and targets developed in e-module teaching materials is carried out by considering some of the results from observations and interviews with teachers of economics subjects. This step includes formulating skills and expertise related to the problem, determining the objectives to be achieved at each stage, and, if possible/necessary to carry out a limited feasibility study. Based on preliminary observations, some information is obtained that supports the selection of material to be developed in this interactive teaching material. Based on information from the class XI Economics subject teacher, it was stated that students had difficulty understanding abstract and visual material. This can be seen from the V semester report card results for the 2019/2020 academic year, classified as low. The difficulty is also because the e-book has not been implemented. Teaching materials used by students in class only use worksheets where the presentation of the material contained in the worksheets has a very minimal explanation and has not been interactive, which results in students having less / difficulty understanding the concept.

3.3. Develop Preliminary Form of Product

The development of the initial form of the product, namely developing the initial form of the product to be produced. At this stage, supporting resources are collected in developing interactive teaching material products in the form of software, learning resources, and facilities and infrastructure. The process starts from identifying the syllabus in the form of competency standards and essential competencies according to the needs analysis during initial observations and interviews with subject teachers and students. After determining the competency and competency standards, then proceed with implementing a learning implementation plan (RPP). The lesson plans developed to use the assignment method, where

this interactive teaching material will be used independently by students. The following is the design of the first page of the e-module being developed.

Figure 2. *The cover of E-Modul*

3.4. Preliminary Field Testing

At this stage, an initial field trial was carried out on a limited scale involving seven subjects. Testing was carried out for one week to observe the trials being carried out. In terms of using media, students have no difficulty. To understand the material, they were given time to study it, and during class meetings, they might ask questions that were not understood or not from the explanations contained in the e-module. To get preliminary results, the researcher collected and analyzed the data using interviews and observations. At the end of the small group trial, the six students were asked to fill out a response questionnaire that had been provided. Below are the results of the small group trial assessment on six students can be seen in the following table: The purpose of this preliminary field testing was to determine student responses to interactive teaching material products developed before being tested in large groups. The small group trial was carried out on February 2, 2021. This small group testing process was carried out to test the use of e-modules on seven students from class XI-A who were directly selected by researchers as teachers of economics subjects and assisted by peers. The purpose of selecting students from class XI-A who will later become the experimental class is to provide information and feedback from the use of e-modules. The seven students were asked to explore all the menus and features contained in the e-module. Furthermore, questionnaires were distributed to respond to the results of the trials carried out. The following is a questionnaire given to the seven students when they finish using the E-module product.

Based on the table assessment of small group test results by seven students on these three aspects, it can be concluded that this interactive teaching material product was very suitable for use for extensive group testing (experimental class). The mean overall score of

the three aspects was 3.48, which qualitatively categorized as "eligible" (X ≥ 3.0). The following was a table of small group test assessments on the three aspects of the assessment:

Table 1. Small-Group Test Assessment on Learning, Display, and Programming Aspects

Aspect	Average Score
Learning	3,21
Display	3,28
Programing	3,97
Total	**10,46**
Average score	**3,48**
Category	**Eligible**

Based on table 1, the programming aspect obtained a higher average score than the other two aspects. This is because students get used to and like learning programs using media devices very quickly in the programming aspect. Some comments and suggestions for improving the e-module before it is used in the large group / experimental group are as follows:

a. Generally, the e-module is quite exciting and fun,
b. Learning using e-modules is very interesting and easy to use by students,
c. With e-modules, students can become more independent and accelerate learning but still need teachers to understand better phenomena and questions that students in language do not understand.
d. Still need a direct explanation from the teacher,
e. Generally all good. The image is interesting and supports the explanation of the material.

3.5. Operational Field Testing

At this stage, the validation test steps for the operational models that have been produced are then compiled validation for media experts, material experts, and design experts. The results of the validation of the three experts can be seen as follows:

a. The Result of Material Expert Validation

The material validator on interactive teaching material products was carried out by material experts, namely Dr. Arwansyah, M.Si. He is a lecturer at the State University of Medan. This material expert validation aims to measure the accuracy and quality of the material presented in the interactive teaching material product, namely the three-dimensional space material. In addition, the objective of this material expert validation is to obtain a product worthy of each aspect. The material expert assessment questionnaire consists of 5 aspects: content feasibility, linguistic aspects, and presentation aspects. Overall, material validation which includes the eligible of content, language and presentation, can be seen in the following table:

Table 2. The Result of the Material Expert's Assessment from the Three Aspects

No	Expert	score
1	Content eligibility	4,45
2	Language	4,5
3	Display	4,57
	Total	**13,52**
	Score average	**4,50**
	Category	**Good/eligible**

Based on table 2, it can be obtained that the mean score for the three aspects of the material is 4.50, which means good or eligible. The materials in the e-module as the development of teaching materials meet the eligibility criteria after going through a validation process from material experts.

b. The Result of E-Modul Design Expert Validation

Further, is to see the test results on e-module design experts that include an introduction, learning outcome objectives, final tests, and learning experiences. For the results of the validation by the e-module design expert, the validator is Dr. Khairuddin E. Tambunan, M.Si. He is also a lecturer at the State University of Medan. For validation, the average score from the four aspects can be seen as follows:

Table 3. The Result of Expert on E-module Design toward the Four Aspects

No	Expert	Score	Category
1	Introduction	4,66	Good
2	Learning outcome objectives	4	Good
3	Final test	3,8	Enough
4	Learning experience	4,2	Good
	Total	**16,66**	
	Average	**4,165**	**Good**

From table 3, the validation on *e-modul*e design includes in good category and similar to materials validation. Therefore, there was no revision at all.

c. The Result of Media Expert Validation

Media expert validation includes screen design appearance, ease of use, consistency, expediency, and graphics. The validator for media experts is Dr. Haryadi, M.Kom. He is a lecturer at Unimed. The result of the five aspects can be seen as follows:

Table 4. The Result of Expert's Assessment for the Five Aspects

No	Media Expert	Score
1	Screen design appearance	4,42
2	Ease of use	4,8
3	Consistency	4,66
4	Expediency	4,33
5	Graphics	4,6
	Total	**22,81**
	Average score	**4,56**

From table 4, the validation of screen display, ease of use, consistency, usefulness, and graphics show a score of 4.56 which means good or eligible. However, there were suggestions put forward by Dr. Haryadi, M.Kom, namely:

a. It must be done adjusting the font and background color of the title covered (such as white letters, yellow background color so that the title is less visible), the text color should be selected in a dark color.
b. The appearance of the e-module application is good. It is necessary to improve the link between the main menu and the sub-menu. For example, when the main menu of employment is opened, it will display the employment module, then to return to another

main menu, no link or button can be used. Therefore, the E-Module Economy Class XI SMA Swasta BPI Paluh Kurau was declared eligible but required revision.

d. Operational Product Revision

Based on the validation test results by material experts, e-module design, and media, the researcher revised the product, especially on the media aspect. The first is to revise the color adjustment of letters and background in covered titles so that the display becomes more transparent and more attractive. Contrast the background coloration and detail for a clear view. Furthermore, revisions were also made to create links between the main menu and the sub-menus. This is done to make it easier to display automatically if you want to find the desired menu. At this stage, make improvements/refinements to the broader trial results so that the product developed is already a functional model design that is ready to be applied. Based on the validation of three experts, namely material, e-module design, and learning media experts, results have been obtained that show the feasibility of being applied to research subjects, in this case, students in the experimental class.

e. Main Field Testing

This stage is the principal trial involving all students conducted on 2 XI classes involving 75 subjects. Students in the experimental class are class XI-A, with a total of 40 students. For the control class, conventional learning is still applied. Quantitative data on learning outcomes are collected and analyzed according to the specific objectives, namely conventional improvement. The control class is a class XI B student with a total of 35 students. For the experimental class, an e-module that has gone through the validation process was applied. The first trial in the experimental class, namely class XI-A, was conducted on February 9, 2021, during the economic course. At the meeting, a pretest was also carried out to determine the students' initial abilities before using the e-module. The value of the minimum completeness criteria (KKM) in economic subjects at SMA Swasta BPI Paluh Kurau is 75. From the pretest results in the experimental class, the minimum completeness score is 15 out of 40 students (see attachment). Whereas in the control class, the number of students who obtained the minimum completeness score on the pretest was 5 out of a total of 35 people.

The second meeting was held on February 16, 2021. At this meeting, students in the experimental class learned using e-modules, then a post-test was carried out at the end of the meeting. The lesson plan at the first meeting was different from what was done in the second meeting. Students were invited to use a gadget to study the topic given for 30 minutes at the second meeting. Furthermore, they are allowed to ask the teacher if there are things that are still unclear. From the observations, it can be seen that students in the experimental class appear to be more independent. They try to study the material that has been given and try to answer the questions according to their ability.

There were 25 students when the pretest had not reached the KKM score, namely 75 with the lowest score of 60, but after using e-module in learning, all students got the grade according to the KKM, namely the value of 80. Furthermore, it can also be seen the percentage of pretest and post-test results in class experiments like the following table:

Tabel 5. The Percentage of Students Score based on Minimum Score Mastery in the Experimental Class

No	Test	Percentage
1	Pretest	37,5%
2	Posttest	100%

From table 4, it can be seen that there is a very significant amount of learning before using e-module compared to after using e-module, namely 62.5%. For the control class, where learning is still conventional, the number of students who fall into the minimum score mastery was seven. For more details, the percentage of pretest and post-test scores can be seen as follows:

Table 6. The Percentage of Minimum Score in Control Class

No	Test	Percentage
1	Pretest	14%
2	Posttest	20%

From table 6, it can be seen that there was only an increase of 6% from the pretest to post-test results. Some of the comments obtained from students in the control class were that they felt bored if only learning were taught conventionally. "We are sleepy and bored as long as the teacher explains." Another comment was, "sometimes I feel lazy to write it, so I miss what the teacher said, so we can't answer the question." From observations and discussions with peers, researchers observed that students in the experimental class were thrilled and liked learning using e. -module. They are very excited because they can directly download the application and can study anywhere. Learning patterns that have so far relied heavily on teacher explanations have become independent because they have e-modules that can be studied anywhere, just by opening the application on their respective devices.

e. Main Product Revision

After applying the product to SMA Swasta Paluh Kurau students in the experimental class, it is necessary to carry out a product revision stage from the responses and comments of students who have experienced treatment. The following is a table of the results of the questionnaire given to students in the experimental class. The students in the experimental class responded to the questionnaire given with a mean score of 4.57, which means that the use of e-modules in learning economics is eligible. This shows that learning using e-module gets excellent responses from students.

f. Final Product Revision

At this stage, final improvements are made to the e-modules developed to produce the final product (final). Until the end of the trial with class XI-A students at SMA Swasta Paluh Kurau, there were no responses or comments for improving the e-module in economic subjects. Researchers will continue to make revisions annually to improve and further explore current material so that students get more updated information.

g. Dissemination and Implementation

At this stage, the e-module product will be used in learning in class XI after obtaining official permission from the school leadership.

IV. Conclusion

Based on the results of research that aims to answer problems regarding the feasibility of using e-modules in learning economics subjects at SMA Swasta Paluh Kurau in class XI, it can be concluded that the use of e-modules in economic subjects, especially employment materials for class XI students of Private High School Paluh Kurau that is generated in digital form and can be accessed using a PC, laptop, and device is suitable for use. This e-module teaching material product is equipped with text content and images. In addition, this e-module also contains components which include; cover page, module identity, introduction, table of contents, glossary, user suggestions, descriptions, final objectives of learning, concept maps, success criteria, content contains; (a) learning objectives, (b) description of the material, (c) summary, (d) practice questions, (e) list of references, (f) answer keys/discussion of questions), and competency tests. Exercise questions are presented in each learning activity in the form of multiple-choice questions, which aim to measure students' understanding of the material that has been studied. The results of the validation test that material experts assessed obtained an overall mean score of 4.50 with the "Eligible" category, with details for the average score of each aspect of content feasibility of 4.45 with the feasible category; linguistic aspect of 4.5 with a decent category; and the presentation aspect is 4.57 with the feasible category.

Suggestions for using e-modules as teaching material products to be more effective in the learning process include the following: (1) The use of interactive teaching material products for teachers to take steps such as the teacher first explaining about the product and its use to make it easier for students understand the material presented in the e-module teaching materials. Then in delivering the material, it should be started by conveying the learning objectives so that students can have an overview of the material before learning, and when using e-module teaching materials, the teacher should explain the material or practice questions contained therein.

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