The effectiveness of the economics module of Advanced materials for students of the economics study program, State University of Medan, 2023/2024

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Abstract. This study aims to find out whether the economics module of advance material for students of the economics studies program at Medan State University for the academic year 2023/204 is effectively utilized in learning, and it is hoped that this module can help students, especially in economics courses. The development model used is the Borg & Gall Research and Environment (R&D) model, using a sample of 2 classes, namely the experimental class and the control class of 35 people each. The data collection methods used are interviews, questionnaires and tests. To find out if this module is effective or not, a test is carried out. Based on the results of the data analysis performed with different tests, the results were obtained that with the calculation of the t-test with a significant level of 5%, the estimated results obtained the value of the t-count > table t, or 3.577363074 > 1.995468931. The results of the study explained that the learning outcomes of the students in the experimental class using modules obtained higher scores compared to the scores of the students in the control class without the use of modules, based on the analysis, it can be concluded that the use of the economics module of the advance material is effectively used, So that with this module you can increase students' understanding of Advance's economics material in students of the economics studies program at Medan State University.

Keywords: Development, Module, Hard to understand.

1 Introduction

1.1. Background to the problem

There are a lot of learning resources available for studying economics; some are advanced materials, some are vital but hard to understand, and some are misconceptions. My study was centered on developing modules using cutting-edge materials. Advanced material in education is more than simply an educator's foundation; it is their ability to learn. In economic learning, a teacher needs to possess competences related to learning management.

This study's primary goal is to help students comprehend advanced economic subjects. A 21st-century invention, advanced material enables instructors and lecturers to develop fresh, personalized content that substantially surpasses general material while also manipulating existing content as a continuation of earlier material at a higher level. For higher education economics courses, advanced content is advanced information that varies based on the needs of In connection with the above, lecturers, in their capacity as facilitators in lectures, must train higher creativity and innovation in solving problems arising from student experiences in order to foster a better and more enjoyable learning environment for students and lecturers. The recommended course of action is to create teaching materials by conducting a series of research and development (R&D) that will result in modules that can be used in the classroom.

Many authors have created a large number of modules for economics lectures, however there are now only a small number of modules that concentrate largely on advanced subject. This makes the author desire to investigate this topic further. The main goals of module construction are to assist students' knowledge capacities and teachers' abilities to instruct, assign, and assess students' learning outcomes. Consequently, the construction of this module will also consider the six different activities routine assignments, journal reviews, CBR, micro-research, projects, and idea engineering that are included in the KKNI curriculum design that Unimed chose. It goes without saying that this will incorporate task concepts, knowledge, and information to make learning easier for both lecturers and students.

1.2. Formulation of the problem

The availability of modules that are generated without going through various pertinent research and development (R&D) is one significant issue that has to be investigated. This can be achieved by finishing a variety of R&D projects, some of which include modules pertaining to the concept of the six KKNI tasks. Based on various research and development (R&D) techniques, it is anticipated that this module will strengthen learning results, empower students' abilities, and promote learning independence. The primary goal of this project is to develop modules that resemble important and difficult material economics courses in order to operationalize this research agenda as a whole. The following are added to the agenda as the problem is conceptualized: Is the economics of the improved material

1.3. Research Objectives

The purpose of this study is to find out whether the economics module on advanced material is effectively used in teaching students

2 Methods

In the education sector known as Research and Development (R&D), this research is called development research. The model used in this research is the ADDIE Model. Reiser and Mollenda created the ADDIE paradigm in 1990 (Rohaeni, 2020:123). According to Mulyatiningsih (2022:5), "the ADDIE model is a model that is considered more rational and more complete compared to other models." As a result, this paradigm can be applied to the development of a variety of products, including media, teaching materials, learning methodologies, and models.

Following the ADDIE development model, it consists of five phases, or five main stages of figure 1.
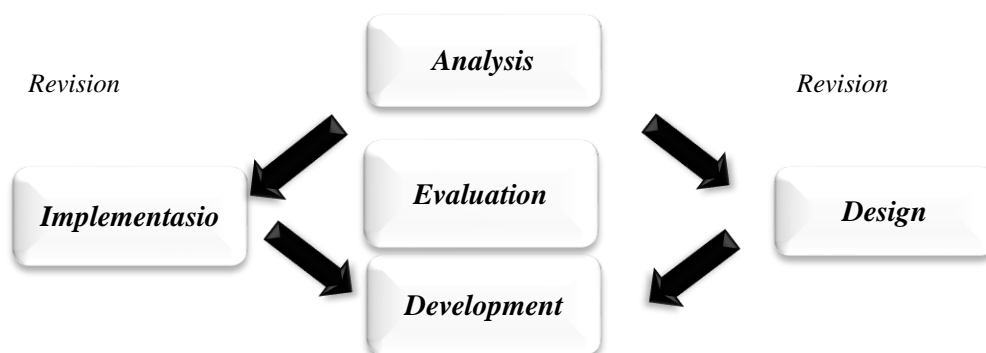
Analysis

Revision

Revision

Implementasio

Evaluation

Design

Development

Figure 1. ADDIE Development Model

The performance analysis stage and the needs analysis stage are the two phases that make up the ADDIE paradigm. Once the needs are established, proceed to the design phase. It is believed that this design will provide a response to whether the proposed learning program can solve the problems identified during the analysis phase. This research will create teaching materials that meet the demands of students in the third step, which is the development stage. The fourth step is implementation, which applies teaching materials that are made to be used or tested. The evaluation stage, which is number five, involves determining whether the teaching materials have met the standards required to produce useful, valid, and potentially effective work

2.1. Creating instruments for evaluation

Instruments for assessment are used to gather information or data. The process of evaluating anything involves gathering data regarding its operation, which is then utilized to choose the best course of action when making judgments. Assessment instruments can also be referred to as evaluation tools or assessment instruments used for data or information collection, depending on how these instruments and evaluations are defined.

Assessment instruments are classified into two categories: test and non-test. There are many instruments or evaluation tools in education that can be used to evaluate the educational process and results that have been implemented. The test consists of a series of questions that learners must respond to using their knowledge and critical thinking skills. The test consists of multiple-choice questions, exercises, and additional instruments designed to assess an individual or group's skills, knowledge, intelligence, abilities, or talents. Meanwhile, questionnaires, document exams, assessment scales, observation guidelines, interview guidelines, attitude measures, and so on are all included in the non-test category. A series of written statements called questionnaires are used to collect data from respondents

2.2. Effectiveness Test

The effectiveness of this module was evaluated using the t-test on the experimental class and control class designs, based on the results of the learning outcome test in the field trial group. For the examination of the differences between the two averages of the gathered non-free samples to be appropriate, the two data to be evaluated to see the differences must come from

the same group and produce two separate data distributions. The learning outcomes of the experimental and control classes can be compared with this economics module. To evaluate the hypothesis, the subsequent standards are applied:

The experimental class, which used the economics module, and the control class, which did not, had the identical learning objectives.

According to the criteria, accept Ho if the Sig value is greater than 0.05 and reject Ho if it is less than 0.05.

3 Results And Discussion

The economics module in this advanced material has been compiled and developed based on a sequential series that considers the context of the problems faced by each student in relation to the topics discussed, the author's experience of studying at the university and high school levels, as well as information shared by other lecturer friends about the challenges they face when giving lectures, especially when it comes to exploring significant issues related to the material fundamental economy, both conceptually and theoretically. It serves as the writer's starting point for putting together a well-written module that meets the requirements. The final product can assist students in improving their academic performance.

3.1. Learning outcomes

As we can see from the learning outcomes of 35 students for each class who will be examined using various tests, a test consisting of sixty multiple-choice questions is offered to determine the learning results of students in both the experimental and control classes. The purpose of this test is to assess the effectiveness of the advanced material's designed economics module. The learning objectives of the students in the experimental class—which used the economics module—and the control class—which did not—are shown in Table 1.

Table 1. Learning Outcomes of Economics Students in Experimental and Control Groups

| Value | Catagory | Number of students | | | |
| | | Experiment Class | | Control Class | |
		Number	Percentages	Number	Percentages
90-100	Very good	13	37 %	5	14%
80-89	Good	19	54 %	21	60%
70-79	Sufficient	3	9 %	9	26%
< 69	Less	0	0	0	0
	Total	35	100%	35	100%

Source: data processing

Students in the experimental class who used the teaching module scored higher than students in the control class, according to the information in Table 1 above. For instance, the experimental class scored a very high 37% in the 90–100 score range, compared to the control class's meager 14%. Within the 80-89 score range, the experimental group received a score of 54%, whereas the control group received a higher score of 60%; Similarly, within the 70-79 score range, the experimental group saw a drop of only 3 individuals, while the control group received a very high score of 26%, or 9 individuals.

3.2 Evaluation

Each step of the creation of the economics module is evaluated by the authors; The purpose of the evaluation is to collect feedback and replies, after which the resulting module is revised. The assessment of the resulting module test results is carried out during the implementation phase. After using the modules designed to ensure the usability of the resulting modules, evaluations are carried out to ensure student feedback and learning outcomes.

3.3 Examine grade data that students have submitted through modules.

Assessments were given to students in the experimental and control classes, each having a total of 35 students, as can be seen from the learning outcomes following the use of the module. Table 2 shows the greatest and lowest scores that students received for both classes, along with the average, standard deviation, and deviation.

Table 2. Student Post-test Score Results Data

Class	Avarage	Standard Deveation	Highes Value	Lowes Value
Control	82.91	5,12	91	74
Expriment	87.11	4.70	95	75

Source: data processing

As can be seen in Table 2 above, the control class students' evaluation results generally indicate that they received an average score of 82.91 with a standard deviation of 5.12, with 91 being the highest score and 74 being the lowest. The lowest score is 75, the standard deviation is 4.70, and the average score is 87.11 using the module (Trial). 95 is the highest possible score. We can infer from the chart that the experimental class's kids received higher grades than the control group's.

3.4 Normality test

To see whether the data is normally distributed or not, using the Lilifors Test method, it is stated that it is sphezmatic if the T_hit < T_tab value is at the alpha level of 0.05, considering the test results carried out to determine whether the information is distributed normally. The following table provides an overview of the findings from student trials in control and experiment classes:

Table 3. F-Test: Two-Sample For Variances

Information	Experiment	control
Mean	87,11428571	82,91428571
Variance	22,04537815	26,19831933
Observations	35	35
Df	34	34
F	0,441480626	
P(F<=f) one-tail	0,308820765	
F Critical one-tail	0,564312915	

Source: data processing

Table 3 above makes it clear that both the experimental class's values and the control class's data display a lower T-count value than T_tab. For the control class, T-hit = 0.441480626 and T-tab = 0.564312915. Accordingly, it can be concluded that, for the data gathered from the examination of the experimental and control classes, both samples are normally distributed.

3.5 Test the difference between two means.

Finding out if this module is effective is the next step. To do this, a test of difference from average is used to determine whether the learning results of the two classes differ from one another. The experimental classes that use modules and the control classes that don't use them both employ distinct test tests (t-tests). Under the subsequent circumstances

1. If the t-count score is higher than the t-table, then it is considered that the learning outcomes for the two classes differ.
2. If the T-count value is less than the T-table, it is argued that there is no difference between the learning outcomes of the two classes.

Briefly, Table 4 below lists the calculation results for hypothesis testing:

In brief, Table 4 below lists the outcomes of the calculation for the hypothesis test:

Table 4. T-Test: Two-Sample Assuming Equal Variances

Description	Expriment	Control
Mean	87,11428571	82,91428571
Variance	22,04537815	26,19831933
Observations	35	35
Pooled Variance	24,12184874	
Hypothesized Mean Difference	0	
Df	68	
t Stat	3,577363074	
P(T<=t) one-tail	0,000322541	
t Critical one-tail	1,667572281	
P(T<=t) two-tail	0,000645081	
t Critical two-tail	1,995468931	

Source: data processing

Based on the results of the t-test calculation, which appears in table 4, it shows that the estimation results obtained that the t-count > t-table, or 3.577363074 > 1.995468931, indicates that the hypothesis is accepted in the end. The results show that the learning outcomes of students in the experimental class using modules obtained higher scores than the scores of students in the control class without using modules.

4 Discussion

The study "Development of Sharia Economics-Based Economics Modules for Class X State Madrasah Aliyah Students" was carried out in 2015 by Arfaalah Khairuna. The purpose of this project is to create a sharia-based economics program for class X pupils at Madrasah Aliyah and assess its efficacy. The study's findings, as shown by a test of the normalized gain value comparison, illustrate the module's utility. More specifically, the gain of 0.41739 for the experimental class is more than the gain of 0.28169 for the control class, indicating that the former is more efficient than the latter. Moreover, a Sig.(2-tailed) value of $0.012 < 0.05$ (?) was obtained from the t-test results, which is consistent with the independent sample t-test decision-making framework.

Nandi (2020) After conducting a study titled Teachers' Perception of Mastery of Advance Materials for Geography Learning, the researchers came to the conclusion that teachers had a conceptual understanding of what advanced materials meant based on the research findings that have been explained regarding their perception of mastery of advance materials for geography learning. This comprehension can be inferred, at the very least, from the teacher's proficiency in classifying items according to their depth and their ability to discern between advance and important materials. This capability will have an impact on the teacher's capacity to impart knowledge. The majority of instructors demonstrate skill and seriousness in using advance materials for teaching geography through their learning planning. This is consistent with the educator's dedication to putting learning into practice. to enhance comprehension of advance materials. The majority of respondents choose to use the internet, with a propensity to look for journals and instructional materials as sources of information. A geography teacher needs to practice leading scientific debates in addition to reading journals and other materials from the internet. This will help them become more interpersonally intelligent, which will increase their dedication to teaching. Teachers need more time to get ready to implement advanced geography instruction.

Zakiah (2021) Undertaking Study Under the title "Creation of a Digital Pocket Book-Based Economics Module through Problem-Based Learning," Although modules are a means of imparting knowledge, their inefficiency may make it more difficult to meet learning objectives. The purpose of the research on the creation of a digital pocket book based on Problem-based learning (PBL) is to determine the viability of the idea, assess its efficacy through learning outcomes, and determine how useful it is to use digital pocketbooks in the classroom. This kind of study uses Dick & Carey ADDIE paradigm for research and development (R&D). Five steps make up the research procedure: analysis, design, development, implementation, and assessment. Twenty Science XI students served as the study's subjects. methods for gathering data that include tests, questionnaires, and interviews. Three methods are used to analyze data: (1) student questionnaire responses; (2) expert analysis and validation; and (3) gain score calculation. The findings demonstrated that the "very feasible" digital pocket book was utilized, as seen by its 83.77% feasibility score percentage, 88% practicality score, and 0.64 acquisition score when using the "moderate" criteria. These findings indicate that using PBL-based digital pocket books to enhance learning outcomes makes them very practical and practicable to utilize during the learning process.

5 Conclusion

The following conclusions can be drawn from the formulation of problems, objectives, findings, and research discussions from the developed modules:

1. The experimental class, which uses modules to teach its students, has an average score of 87.11, whereas the control class receives an average score of 82.91.
2. The conclusion drawn from the T-Test analysis for independent samples is that students enrolled in the economics study program who use modules have better learning outcomes than students who are taught without using modules. The results were obtained on n ilai sig.2-tailed and compute stable > or 3.577363074 > 1.995468931. Consequently, the learning process makes good use of the modules that were created.

3.8 Suggestions

The researcher made a number of recommendations based on findings, research, and research development, including:

1. That this economics module on edvanc material can be used in the classroom, assisting students in understanding the subject matter and broadening their perspective on effective learning.

2. It is anticipated that the use of research products in complex economics modules will serve as a reference source for future studies in the creation of teaching materials and can be optimized during the economics learning process.

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