

DEVELOPMENT OF AN ELECTRONIC MODULE (E-MODULE) BASED ON THE INDEPENDENT LEARNING CURRICULUM IN ECONOMICS SUBJECT FOR CLASS X SMA

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ABSTRACT

The aim of this research is to analyze the feasibility of e-module based on the Independent Learning Curriculum in Economics subjects for class X SMA. This development research applies the ADDIE development model which consists of 5 stages, namely analysis, design, development, implementation and evaluation. The research was conducted at SMA Negeri 1 Sidayu in class X-5 with test subjects of 36 students. The research instruments used in this research were validation sheets and student response questionnaires. While the data analysis technique in this study is quantitative and qualitative data analysis obtained from the validation of experts, namely material expert, language expert and graphic expert, as well as student response questionnaires with assessment score criteria using a likert scale which is then analyzed descriptively. The research results based on expert validation, stated that the material expert validation results were 90.95% in the very feasible category, the language expert validation results were 80% in the feasible category, and the graphics expert validation results were 96% in the very feasible category. Meanwhile, students' responses to the e-module received an average of 83,4% in the very feasible category.

Keywords: *Electronic modul, independent curriculum, independent learning*

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INTRODUCTION

The Industrial Revolution 4.0 has changed the way of life and work patterns of people who use the internet as an important need in the economic, political, educational and social sectors. Therefore, education must also be able to adapt to the industrial revolution 4.0 in the implementation of learning. Education is becoming increasingly important so that students have the skills to learn and innovate, use technology and information media, be able to work and survive to face various existing challenges, so that they can prepare a higher quality generation for the 21st century. Thus, teachers need to gain knowledge and skills to adapt and

innovate in the teaching and learning process to produce a generation that is high quality and can compete in the global world. This is in line with (Mardhiyah et al., 2021) that to face the challenges and demands of the current global century, learning and practice in the 21st century are needed to prepare a quality 21st century generation.

21st century education faces challenges with 4 skills called the 4C, namely creative thinking, critical thinking and problem solving, communication, and collaboration. Mastering information and technology is not enough to be competitive, the students must be able to develop critical thinking skills to prevent the spread of misinformation on social media (Indraswati et al., 2020). 21st century education is expected to produce competent human resources, so teachers should be able to integrate information technology facilities to help students learn with Technology-based teaching materials, methods and teaching media.

In order to improve the quality of education in Indonesia to create a generation that is globally competitive, the government through the Ministry of Education and Culture launched a new curriculum which aims to provide more space for students to learn according to their needs (ability and speed), namely the Independent Curriculum. Because the curriculum is dynamic, therefore the education system must always be subject to change and development. So that the curriculum used is able to keep up with the challenges and developments of the times. Because according to (Limiansi et al., 2023) curriculum changes are one way of adapting education to face various scientific and technological developments. Apart from that, the Independent Curriculum was developed as a more flexible curriculum framework, focusing more on material that can develop students' character and competencies (Hildayati et al., 2023).

Learning in the Independent Curriculum is designed by considering the development and achievement levels of students, adjusted to the learning needs of students, so that learning is more meaningful and enjoyable (M. R. Dewi, 2023). In implementing the independent learning curriculum, teachers as implementers of the teaching and learning process in schools play an important role in the success of the implemented curriculum. Teachers must be able to innovate and continue to push themselves so they can keep up with the times (Quratul Aini & Adiyono, 2023).

The current development of information technology cannot be avoided, so education and information technology must go hand in hand to create quality education. According to (Efriyanti & Annas, 2020), mobile learning applications are one of the tools for implementing 21st century learning because students are expected to have communication and collaboration skills in solving problems to achieve a goal. By implementing this application, the use of technology in learning is able to create learning activities that do not recognize the boundaries of space and time. These developments include changes in learning methods from classical learning to digital based learning which can change students' learning orientation from teacher-centered learning to student-centered learning with (Mardhiyah et al., 2021). This is in line with the concept of independent learning according to

(Hildayati et al., 2023), that teachers can develop creativity and innovation by not only focusing on the teacher in the learning process (teacher centered), but by placing students as learning subjects so that the learning process be fun, comfortable and meaningful, cooperative and mutually respectful so that learning can truly be appreciated.

Apart from that, the presence of technology in education has other impacts, namely the existence of learning strategies such as digital based learning content which can be created in the form of e-books or e-module (Kurniawan & Kuswandi, 2021). The development of e-book technology makes it easier to combine print and computer technology in learning activities, including module. Module presentations can be converted into digital form, electronic module (e-module) are needed in learning activities that require students to explore independently (Sugianto et al., 2013). Because e-module allow students to learn according to their level or abilities, and at the end of the lesson, students can find out their level of success. The existence of e-module allows students to correct their mistakes and carry out evaluations.

E-module are prepared using electronic devices. E-module can make the learning process more fun, interactive, can be done anytime and anywhere and can improve the quality of learning (Yulianto et al., 2022). The e-module contains lesson material and practice questions at the end of the lesson to measure student learning outcomes. So that it makes it easier for teachers and students to find out their competency achievements, on the other hand, a teacher's duties are also more easily accessible with the available teaching materials. This is in line with the opinion (Latifah et al., 2020) that module enable students to learn more independently, either with or without a teacher, according to their abilities, experience and proficiency in the material they have acquired.

SMA Negeri 1 Sidayu is a public high school in the Sidayu sub-district, Gresik. SMA Negeri 1 Sidayu has been designated as a school with an "A" accreditation score by the National School/Madrasah Accreditation Board (BAN-S/M) which has implemented the Independent Curriculum. Based on an interview with an economics teacher at SMA Negeri 1 Sidayu Gresik, the teaching materials used by students were textbooks from the government mixed with other social studies subjects. According to interviews with students from SMA Negeri 1 Sidayu, the textbook is not complete in terms of material, because it is mixed with material in other lessons, so if there are more in-depth questions, the students have to search from other sources (internet). Apart from textbooks, other teaching materials used are e-module downloaded from the internet. However, the module used is not accompanied by activity sheets that can hone students skills in problem solving and critical thinking, and the questions available at the end of each material are less varied. In fact, the module is created so that students are able to learn independently. The learning contained in the module still applies the 2013 curriculum, so it is not in accordance with the curriculum implemented in schools, namely Independent Curriculum.

The concept of independent learning is self-regulated learning which allows students to learn at their own pace, with the teacher as a facilitator (Fitra & Maifa, 2022). This is in accordance with the advantages of e-module, namely that they can be accessed easily both online and offline via smartphone, laptop or PC. E-module can be accessed anywhere and at any time even without teacher assistance. E-module as a learning medium can help students to learn independently because they contain various practice questions accompanied by answer keys so that students can immediately measure their abilities after working on the practice questions. Apart from that, the e-module also provides supporting videos for in-depth study of actual material to train students to develop critical thinking skills. The advantages of this e-module are that it can help students learn independently. Apart from being adapted to the Independent Curriculum, the difference between the e-module developed and the previous e-module is that it provides case studies that can be done in groups to explore student problem solving skills. Apart from that, there are economic phenomena in the e-module to increase student insight into economic phenomena related to material and occurring in everyday life.

As support, there are studies that are relevant to the e-module developed, such as research conducted by (Gusrianto & Rahmi, 2022) which shows that e-module is worthy of use in the learning process. In addition, research conducted by (N. Dewi & Suniasih, 2023), the results of the study state that e-module is valid and effective to be applied in the learning process. Among various e-module development research, there are differences between e-module based on the Independent Curriculum in Economics subjects and e-modules that have been developed previously. Among them, the e-module developed is adjusted to the curriculum currently used by the school, namely the Merdeka Curriculum, because there are content components in the e-module including Learning Outcomes (CP), Flow of Learning Objectives (ATP), Pancasila Student Profile, meaningful understanding, trigger questions which are not yet in the 2013 Curriculum e-module. Besides that, there has been no development of e-module based on the Independent Curriculum in Economics subjects for class X in phase E, so this development research needs to be carried out.

Based on the problems above, teaching materials can be developed in digital form which are arranged creatively and innovatively. One development by utilizing information and communication technology is developing electronic based module teaching materials (e-module). E-module teaching materials will influence learning activities because they provide convenience and help educators prepare and carry out learning activities by utilizing the latest technology in using e-module. Based on the explanation presented above, the researcher is interested in developing an e-module based on the Independent Learning Curriculum for the Economics subject of class X SMA in semester 1. The aim of this research is to analyze the feasibility and response of students to e-module based on the Independent Learning Curriculum in Economics subjects for class X SMA.

RESEARCH METHOD

The research chosen by the researcher is a type of Research and Development (R&D). In this research, we developed a learning product, namely an e-module based on the Independent Learning Curriculum in Economics subject for class X semester 1. This development research applied the ADDIE development model. The ADDIE development stage consists of five stages, namely analysis, development, implementation, evaluation (Pribadi, 2014). Sezer emphasized that the ADDIE model is an approach that emphasizes an analysis of how each component interacts with each other by coordinating according to the existing phases (Rayanto & Sugianti, 2020).

The research was conducted at SMA Negeri 1 Sidayu in class X-5 with test subjects of 36 students. The research instruments used in this research were validation and review sheets, as well as student response questionnaires. Meanwhile, the data analysis technique in this research is quantitative data analysis obtained from validation from experts, namely material expert, language expert and graphics expert, as well as student response questionnaires to the products being developed. Next, the data was analyzed based on the likert scale.

Table 1.
Likert Scale

Criteria	Score
Very Good	5
Good	4
Enough	3
Less Good	2
Not Good	1

Source: (Riduwan, 2016)

Based on the results of the questionnaire, then analyzed using the formula:

$$\text{Assessment level} = \frac{\text{Total score respondent}}{\text{Score Maximum}} \times 100\%$$

After the validation results of the e-module are analyzed, they must be adjusted to the appropriateness criteria for material, language and graphics which are guided by the Likert scale with the following interpretation:

Table 2.

Percentage of Validation Feasibility Criteria

Criteria	Score
Very Feasible	81%-100%
Feasible	61%-80%
Fairly Feasible	41%-60%
Less Feasible	21%-40%
Not Feasible	0%-20%

Source: Adapted from (Riduwan, 2016)

The results of the interpretation of these criteria illustrate the feasibility of e-module based on the Independent Learning Curriculum in Economics subjects for class X SMA. Based on the percentage criteria table, the product being developed is

said to be feasible if the percentage produced reaches $\geq 61\%$. The results of this interpretation obtained quantitative data derived from the results of the assessment of validators who are material expert, graphics expert, and language expert on the e-modules developed.

RESULTS AND DISCUSSION

Results

Based on research in accordance with the objectives and stages of the ADDIE development model, the results of product development can be described as follows.

1. Analysis Stage

Analysis is the first stage in applying the ADDIE development model to design and develop a product. The analysis stage consists of curriculum analysis, student analysis, concept analysis, and task analysis. At this stage the researcher collects data related to problems in the learning process. From the existing problems, a solution was then sought to carry out the e-module design stages at SMA Negeri 1 Sidayu in Economics subject class X semester 1, namely introduction to economics and economic activity.

2. Design Stage

At this stage, the module design stage is carried out which will be developed into an e-module based on the Independent Learning Curriculum in Economics subjects for class X SMA, including:

- a. Prepare reference books related to material on elements of introductory learning outcomes in economics and economic activities
- b. Choosing the right format for developing e-module based on the Independent Learning Curriculum
- c. Develop the e-module structure

The structure of e-module based on the Independent Learning Curriculum is as follows:

1) Initial Part

At the beginning of the e-module there is a cover, sub cover, foreword and table of contents.



Figure 1.
Cover

2) Content Section

a) The e-module being developed contains the module identity at the beginning of each learning element and instructions for use.

b) There are several differences between e-module based on the Independent Curriculum and the 2013 Curriculum, including the following:

(1) Learning Outcomes (CP)

Contains a set of competencies and scope of material arranged comprehensively in narrative form. is a learning competency that students must achieve at each phase of development.

(2) Pancasila Student Profil

Contains the character and competencies that students are expected to achieve, which are based on the noble values of Pancasila.



Figure 2.
Pancasila Student Profile

(3) Learning Objective Flow (ATP)

Contains a series of learning objectives used as a reference for learning planning.

(4) Meaningful Understanding

Contains the understanding given to students regarding the goals and benefits of the learning carried out for their lives.

(5) Triggering Questions

Contains questions that can trigger students to focus on the learning material.



Figure 3.
Triggering Questions

- c) The next part of the e-module content has a concept map, material description, and material summary.

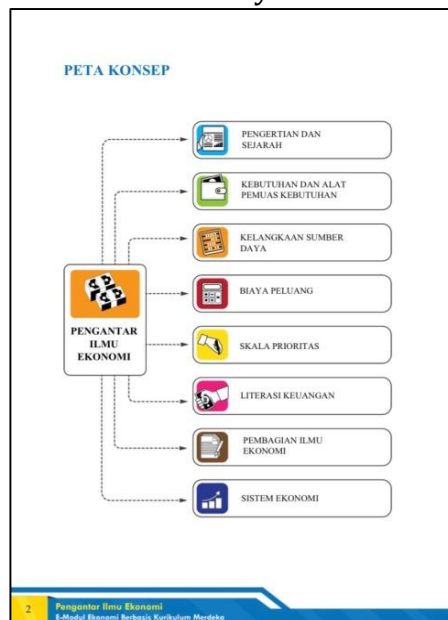


Figure 4.
Concept Map

- d) Economic phenomena and student activities
Economic phenomena in the e-module contains videos about economic phenomena that occur in the real world and are connected to the material being studied. Meanwhile, student activities contain activities that students

can do to solve a problem and can be done in groups by scanning the barcode that has been provided.



Figure 5
Student Activities

e) Practice questions, answer keys, and assessment guidelines

The practice questions are arranged not only to contain multiple choice questions, but in the e-module there are complex multiple choice questions, true/false, matching and description questions. The aim of giving practice questions on the e-module is to measure students' level of understanding after studying the material. After working on the questions, students can immediately match the answer key and assess the answer based on the assessment guidelines contained in the e-module.

f) Reflection

Contains a statement regarding the feedback given by students after learning.

3) Final Part

At the end of the e-module, there is a glossary, bibliography and author's identity which contains a brief biodata of the author.

3. Development Stage

This stage produces a product in the form of an e-module based on the Independent Curriculum in Economics subjects for class X SMA. Before conducting field trials, the e-module needs to be validated by a validator who is an expert in the field. The e-module product was validated to determine feasibility with two material validators who are competent in the field of economics, a linguist and a graphics expert. A summary of validation from experts can be seen in the table 3 below.

Table 3.
Recapitulation of Expert Validation

Validation	Score	Category
Material	90,95%	Very feasible
Language	80%	Feasible
Graphic	96%	Very feasible

Source: data processed by researchers (2023)

4. Implementation Stage

Implementation is the fourth step in applying the ADDIE model to design and develop a product. In this e-module development research, if the e-module being developed is suitable for use according to experts, then the next stage is the implementation stage by conducting field trials to find out students' responses after using the e-module. The trial was carried out on students in class X-5 of SMA Negeri 1 Sidayu. From the results of this trial, it can be seen that students' responses to the e-module with indicators of interest, material and language towards the e-module obtained an average result of 83.4% with a very feasible category.

5. Evaluation Stage

Evaluation is the fifth stage in applying the ADDIE model to design and develop a product. The evaluation stage is the process of analyzing the e-module developed at the implementation stage and revising the product based on expert evaluation. Suggestions and comments regarding the contents of the e-module which will be used as a reference in improving the e-module. So that revisions to the e-module will be adjusted to the suggestions and input received.

Comments from material expert include several parts where the material needs to be deepened, and the questions are made varied, not just multiple choice. Meanwhile, linguists provide comments to improve sentence structures so that the sentences used are not influenced by spoken language, correct spelling so that it conforms to the current spelling, and the use of terms, symbols and symbols that need to be corrected again. Next, there are comments from graphic expert who state that the cover for placing the author's name and designation are balanced, and the concept map illustrations are made more attractive.

The data obtained was related to suggestions and input from experts, including material expert, language expert and graphics expert, and then used as an evaluation to improve e-module based on the Independent Learning Curriculum in Economics subjects for class X SMA.

Discussion

After going through the ADDIE model development stages, namely analysis, design, development, implementation and evaluation, as well as trials to determine students' responses, the e-modules based on the Merdeka Curriculum are suitable for use in the learning process and receive positive responses. The development procedure used is in line with research by (Dari & Sudatha, 2022), (Kusnul Khotimah

et al., 2022), (Wijayanti & Ghofur, 2021), (Hamid et al., 2017) that the development procedure in ADDIE goes through five development stages, namely analysis, design, development, implementation, and evaluation to get a good development product and is feasible to implement.

The results of the feasibility test of experts are based on material validation calculations for the e-module being developed, it can be seen that the percentage value is 90.95% with very feasible interpretation criteria. In terms of material, the e-module is in accordance with the learning outcomes for class. The results of the material expert validation with the "very feasible" category are in line with research by (Aini & Kurniawan, 2022), namely getting an average score on the material aspect with a percentage of 94%.

Meanwhile, based on language validation calculations for the e-module being developed, it is known that the percentage value is 80% with feasible interpretation criteria. The language used in the e-module is adjusted to the level of students' understanding. Supported by research by (Aini & Kurniawan, 2022), the language aspect with 74% validation and declared "feasible" according to the interpretation criteria. Next, the results of graphic validation calculations for the e-module being developed, it is known that the percentage value is 96% with the interpretation criteria being very feasible. Both the size, cover design and contents of the e-module have a proportional composition. This is supported by research by (Rahmi et al., 2019) that graphic expert get an average score of 98.75% with the criteria "very feasible" to be implemented.

Based on the validation results of language and graphic materials, an average result of 88.98% was obtained with a very feasible category. This is in line with (Riduwan, 2016) that a percentage of >81% is a very feasible category. Based on these results, the Independent Curriculum based e-module can be declared suitable for use in conducting trials with students.

In the acquisition of the results of the analysis of the students' response sheet to the e-module developed after conducting the trial, then from all aspects assessed by students from the response sheet to the e-module obtained an average percentage of 83.4% in the "very feasible" category. So that the developed module is feasible to use for the learning activity process and gets a positive response from students and is considered effective to support learning. The results of the above acquisition are supported by research by (Winaya et al., 2016) the average value of students' responses to e-modules is 82.6% both in the aspects of appearance, ease of use, motivation of students and material content. These results indicate success because students feel helped in obtaining learning resources. In line with research (Wulansari et al., 2018) that the average value of students' responses was 82.63% in the broad group, this shows that the developed economic e-module has a level of attractiveness for students.

E-modules can help students to learn easily, especially help in learning economic material, provide enthusiasm for learning, can be used for independent learning. E-modules make it easy to take anywhere, by using e-modules they can

learn anywhere, because it is contained in a cellphone and can be accessed either online or offline. In line with research by (Budiarti et al., 2016) e-modules are considered the most effective to attract students' interest in learning and students who use e-modules can learn anywhere and anytime. Supported by research by (Mulyasari & Sholikhah, 2021) that e-modules presented in this electronic format are not bound by time and place and make it easier for students to learn when distance learning, where e-modules are designed for users to learn independently with instructions in it and then be interested in the learning process because they can be accessed easily. The learning material in the e-module contains material thoroughly so that it can provide opportunities for students to learn the material thoroughly. In addition, there are various good practice questions that are equipped with answer keys. So that after doing the exercise questions, students can match the answer key available in the e-module.

This is in accordance with the characteristics of a good e-module according to (Daryanto, 2013), including self instruction, self contained, stand alone, adaptive and user friendly. In addition, it is supported by research by (Laili et al., 2019) that e-modules can help students who have learning difficulties so that their learning becomes more effective. E-modules support independent learning and allow them to measure their own level of knowledge. Research by (Dari & Sudatha, 2022) and (Lestari et al., 2022) mentioned that e-modules can increase the enthusiasm of students when learning independently. The independence of students in learning using e-modules is supported by research by (Linda et al., 2021) that e-modules can increase students' learning independence from moderate to high categories. So that e-modules as teaching materials can facilitate both teachers and students as alternative teaching materials. As according to (Magdalena et al., 2020) that through teaching materials teachers will find it easier to carry out learning and students will be more assisted and easier to learn.

CONCLUSION

The development of an e-module based on the Independent Learning Curriculum in Economics subject for class X SMA received an average score of 90.03% based on expert validation. So the e-module in this category is very feasible to be applied in economics learning for class X SMA. It was stated that the results of the material expert validation were 90.95% with a very feasible interpretation, the results of the language expert validation were 80% with a feasible interpretation, and the results of the graphic expert validation were 96% with a very feasible interpretation. Meanwhile, students' responses to the e-module obtained an average result of 83.4% in the very feasible category.

The developed Merdeka Curriculum-based e-module is expected to be a reference and support or alternative teaching material and implement learning activities that use electronic media in the grade X economic learning process in phase E. In addition, E-Modules can also assist teachers in explaining the subject matter to be explained. And in further research, it is hoped that it can develop e-

modules on the Merdeka Curriculum in both phases E and F to be made complete for one year, namely odd and even semesters, so that it does not only make one semester.

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