

The Development of Electronic Module of Indonesian History of the Reform Based on the Case Method to Improve High-Order Thinking Skills

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Abstract : This study aims to produce an electronic module based on the Case Method that is feasible and effective in improving students' higher-order thinking skills in the material of Indonesian History during the Reformation Period. This research method uses research and development methods using the ADDIE development design. The research stages of the ADDIE development model consist of Analysis, Design, Develop, Implement and Evaluate. The research subjects were students of the Department of History Education, State University of Medan class 2019. Research data were obtained using questionnaires and tests. The research instrument used validation sheets, student response questionnaires, and tests of higher order thinking skills. Validation data and student response questionnaires were analyzed using the product trial eligibility criteria. Higher order thinking skills test data were analyzed by comparing the test results before and after using the electronic module. The results of the study show 1) the electronic module developed has a good category based on the assessment of material experts with a content feasibility aspect score of 3.73 and a presentation feasibility aspect score of 3.5. 2) the developed electronic module has a good category based on the assessment of media experts with a score of 3.6. 3) the developed electronic module has a good category based on a student response questionnaire of 3.66. 4) the developed electronic module can improve students' higher order thinking skills with an average score of the initial test before using the electronic module of 64.5 and the average score of the final test after using the electronic module of 80.6.

Keywords: Development, Electronic Module, Cased Method, Higher Order Thinking

1. INTRODUCTION

The era of globalization with the spirit of change and openness has brought many positive and negative changes to national life. Openness and individual freedom as part of the characteristics of western democracy are increasingly dominating the way of thinking, behaving, and acting of the next generation. The era of globalization is also marked by the development of science and technology. To respond to these changes, the younger generation must have resources such as communication, collaborative, critical thinking, and creativity. Higher education is one of the strategic components in shaping human resources. At the higher education level, the learning process is directed so that students can think critically and skillfully in solving problems. On the contrary, the teaching and learning process is still 'theory oriented' with conventional approaches and learning methods, namely lectures, question and answer, and discussions. Likewise, students' mastery of the materials is still very limited in understanding the text without understanding it more deeply, linking it with other concepts or linking it to the real world.

Learning history in the midst of the development of technology and information demands a change in the implementation of historical education. These innovations can be in the form of learning strategy, learning media and teaching materials so that history learning can function properly. One of the innovations that can be done is to develop an electronic module with a case method approach. The main reasons for developing case-based electronic modules are (1) teaching materials require illustrations of real

cases in the application of science; (2) the available teaching materials are still based on theory, and (3) to build strong reasons for students to understand, solve problems, and apply materials in the nation and state.

The current availability of teaching materials which are still theoretical unconsciously directs lecturers to employ the lecture method in their teaching and learning process. . This learning condition certainly has not been able to hone students' analytical skills, sensitivity to problems, problem-solving skills and the ability to evaluate problems holistically. When attending lectures, students are limited to understanding while taking notes. Lecturers become the main role in achieving learning outcomes and seem to be the only source of knowledge. The lecturer-centered learning with passive students has low learning effectiveness. Therefore, the development of an electronic module on the Indonesian history during the reformation with a case method approach becomes an alternative in dealing with the current problem of learning history which tends to be memorization.

The module is considered as a teaching material that is compiled in a complete and systematic way supported by a set of learning experiences that are planned and designed to help students master specific learning objectives. The module at least contains learning objectives, learning materials/substances, and evaluation. The module functions as an independent means, so students can learn independently according to their speeds (Daryanto, 2013). Electronic

modules are information and technology (ICT)-based learning materials that are interactive because of the ease of navigation, display of images, videos, and feedback through formative tests (Nina Ikhwati, 2019). It is interactive because the process includes interactions and other activities such as paying attention to pictures, listening to sounds, and even paying attention to videos that aim to increase learning motivation and enthusiasm and has a high graphic value in its presentation. The electronic module is a form of presenting self-study materials that are systematically arranged into the smallest learning units to achieve certain learning objectives which are presented in an electronic format including animations, audios, and navigations that make users more interactive (Sugianto, 2013).

The use of electronic modules in the learning process can foster creativity, productive thinking habits, and active learning conditions so that students can develop literacy skills in the digital era. The advantages of electronic modules compared to print modules are that their interactive nature makes it easier to navigate, allows displaying images, audio, video, and animation and is equipped with formative tests or quizzes that allow immediate automatic feedback (Suarsanaga and Mahayukti, 2013). Based on the research conducted by Diky, et al., (2017), Development of E-Learning Module: Historical Culture Society Based on Local Genius shows that the electronic module on the history of the Using culture is effective in increasing students' knowledge of the cultural history of the Using community.

The case method is learning by using real-world cases implemented in the classroom. The case method describes a real situation related to the material being studied, simulating real-world conditions into a controllable environment in the classroom through discussion in the decision-making process (Jogiyanto, 2006). The case method emphasizes the process of solving cases or problems faced scientifically, placing cases as keywords in the learning process. The case method is implemented by teachers and lecturers by choosing lesson materials that have cases that can be solved. Through learning with the case method, students can develop analytical and innovative thinking skills, critical and analysis, creativity skills and reasoning skills in problem solving. These cases can be taken from textbooks or other sources, for example events that occur in the surrounding or family (Sanjaya, 2006).

Higher-order thinking is a student's thinking activity that involves a high-level hierarchical cognitive level from Bloom's taxonomy of thinking, which includes analyzing, evaluating, and creating (Andersen & Krathwohl, 2015). Higher order thinking skills (HOTS) can be achieved when students actively understand and integrate knowledge with their experiences (Anderson & Krathwohl, 2015). In line with this, Deluca (2011) states that to develop higher-order thinking skills, students must first understand factual, conceptual, and procedural knowledge, apply their knowledge to learn by doing, and then reflect on the process that produces a solution. Teachers can do this by guiding students through observation activities and concept formation, giving responses, analyzing, comparing and providing the necessary considerations. The activeness of students and the guidance of

teachers greatly contribute during learning (Zerihun et al., 2012).

Based on the above background, the research questions in this study are 1) how is the feasibility of an electronic module - using the case method based on the assessment of material experts and media experts? 2) how is the feasibility of an electronic module using the case method based on student responses? 3) how to improve students' higher order thinking skills by using electronic modules using the case method?

2. METHOD

This study used research and development methods using the ADDIE development model. The research stages of the ADDIE development model consist of Analysis, Design, Develop, Implement and Evaluate. The participants were 30 undergraduate students of the Department of History Education, State University of Medan, class of 2019. The data were obtained from questionnaires and tests. The research instrument used validation sheets, student response questionnaires, and tests of higher order thinking skills. Validation data and student response questionnaires were analyzed using the product trial eligibility criteria. Higher order thinking skills test data were analyzed by comparing the test results before and after using the electronic module.

3. RESEARCH RESULT

Electronic Module Feasibility Analysis

The feasibility of the electronic module was conducted using an assessment instrument of material and media experts. The results of the material expert assessment are shown in Table 1.

Table 1. Material Expert Validation Results

No	Aspect	Score	Criteria
1	Content feasibility	3.75	Good
2	Presentation feasibility	3.5	Good
3	Linguistic feasibility	3.8	Good
	average	3.68	Good

Source: Research Results, 2022

As seen in Table 1, the developed electronic module was considered feasible based on the assessment of material experts with an average score of 3.68 (good). In the aspect of content, the substance of the electronic module material was in accordance with learning outcomes. The materials presented in the module used recent cases in order to encourage students' curiosity to read and study it. On the presentation aspect, the electronic module had a good appeal which was placed in several parts. The front cover used the combination of colors, illustrations, and matching font sizes. In the content section of the module, images were provided as stimulation. In addition, the actual problems experienced by students in daily life were presented. Various forms of assignments and exercises were also provided to make them more interesting.

The feasibility of the electronic module was not only based on the assessment of material experts but also based on the assessment of media experts. The results of the media expert's assessment are presented in Table 2.

Table 2. Media Expert Validation Results

No	Indicator	Score	Criteria
1	Electronic module size	4	Good
2	Electronic module layout design	4	Good
3	Electronic module content design	3	Enough
4	Color selection accuracy	3	Enough
5	Image usage accuracy	4	Good
	average	3.6	Good

Source: Research Results, 2022

As described in Table 2, an average score of 3.6 (good) was obtained. These results indicated that in terms of the appearance of the media, the teaching materials developed were considered as feasible. The developed electronic module used a font size that was easy to read and in accordance with the students' characteristics. The module also used a proportional letter comparison between the title and content. In the layout, the spacing between columns was well-arranged. Alternating between paragraphs began with a capital letter. The images on the modules were presented according to the substance of the material presented.

Student Response Analysis

To get the students' evaluation regarding the developed electronic module, learning activities were implemented. Students used case method-based electronic modules as teaching materials during learning. The results of student responses to the electronic module are presented in Table 3.

Tabel 3. Student Response Analysis

No	Indicator	Score	Average	Criteria
1	Ease of learning material	94	3.1	Enough
2	presentation according to learning achievement	113	3.7	Good
3	presentation requires students to think actively	104	3.5	Enough
4	presentation requires students to explore information	119	3.9	Good
5	presentation of pictures makes it easier for students to understand	115	3.8	Good
6	presentation contains cases	107	3.6	Good
7	compatibility of language with student development	116	3.8	Good
8	language used is	112	3.7	Good

	communicative			
9	book display attracts interest to read	110	3.6	Good
10	Readable text size	118	3.9	Good
	Average		3.66	Good

Source: Research Results, 2022

Based on the results of the students' evaluation as depicted in Table 3, an average score of 3.66 was obtained. These results indicated that the developed electronic module was considered good.

Analysis of Higher Order Thinking Skills

The results of the students' higher order thinking skills test were obtained by comparing the average scores of the higher order thinking skills test before and after using the electronic module. The description test consisting of 5 questions about the history of Indonesia during the reformation was used. The average score before using electronics is presented in Table 4

Table 4. Initial test scores

Total score	1935
Average	64.5
Highest score	70
Lowest score	52

Source: Research Results, 2022

Based on the table above, the higher order thinking skills were still relatively low. The highest score was 70 and the lowest score was 52. The average student critical thinking skills test results were 64.5. These results were obtained from the initial test before the learning activities were implemented. In the next activity, learning activities were provided using case method-based electronic modules. At the end of the lesson, students were given a description test of 5 questions. The students' final test results are presented in Table 5.

Table 5. Final test scores

Total score	2419
Average	80.6
Highest score	87
Lowest score	72

Source: Research Results, 2022

Based on the table above, it can be seen that the higher order thinking skills increased. The highest score was 87 and the lowest score was 72. The average score of the student's critical thinking skills test on the final test was 80.6. These results indicated that there was an increase in the average score from 64.5 on the initial test to 80.6 on the final test. Thus, it can be concluded that the use of electronic modules based on the case method approach can improve students' higher order thinking skills.

The development of an electronic module on Indonesian history during the reformation based on a case method was chosen to address student problems regarding student activity and learning outcomes. The electronic module was developed in various stages including analysis, planning, development, implementation, and evaluation stages. The analysis phase was carried out by conducting needs analysis, analyzing

learning resources used by students, and identifying learning problems. The planning stage was done by compiling learning objectives, compiling the subject matter in the module, and determining the application used in the module. The development stage was conducted by making prototype modules arranged according to the learning objectives and presenting cases as problem solving materials. The implementation phase was carried out by directly testing the use of the developed electronic module. The evaluation stage was implemented by giving a test of students' high-level thinking skills after using the electronic module.

The electronic module developed with the case method approach contains cases in the form of gaps, difficulties that occur in aspects of life that are adapted to the subject matter. By giving cases to students through the developed electronic module, students are given the opportunity to analyze, propose solutions, evaluate solutions, solve problems, and make decisions.

The electronic module based on the case method developed presents cases focusing on the cognitive, psychomotor, affective, and motivational aspects. Seidel and Godfrey (2005) states that there are four main characteristics of the case method, namely cognitive, psychomotor, motivational, and affective (interpersonal and attitude). The cases selected in the electronic module are cases that are very close to students' daily lives and are meaningful. Therefore, educators are expected to provide meaningful learning, required. When students learn something and find meaning, that meaning can be a reason to continue learning (Nazgul et al., 2020).

The materials compiled in the electronic module relate to concrete or real problems in daily life that can ultimately improve higher-order thinking skills. Based on the results of the student's higher order thinking skills test, it was found that the electronic module developed could improve students' higher order thinking skills. With this case-based electronic module, the learning method applied was also case-based learning. The use of case method-based electronic modules in this study became effective when used in learning activities using the group discussion method. It occurs because the complexity of the case method not only based on the scale of the problem, but also the complex cognitive, psychological, social, and behavioral interactions between group members during the problem-solving process (Lightner, Bober, & Willi, 2010). The group discussion method can hone and improve critical thinking skills for problem solving, communication skills, collaboration, and creativity, so learning is more meaningful and students can benefit from learning because the problems solved are directly related to real life; students are more independent and mature, able to give and receive opinions from others, and instill positive social attitudes among students (Endah Andayani et al., 2022).

Student activities using the case method-based electronic module developed were directed at a problem-solving activity. Through problem solving, students were facilitated in a learning that trains higher order thinking skills. Through the electronic module, students could build representations, analyze, and build relationships in problem solving. The

results are in line with those of Danilin's research (2021) that the case method can develop analytical skills, critical thinking, creative thinking, practical skills, communication skills, social and reflexive skills. Another study revealed that all levels of thinking in Bloom's Taxonomy can be achieved using case learning methods (Kulshrestha, 2021). In addition, the case method can be used to increase the activities and character of student cooperation (Nugroho, Bramasta, & Pamijo. 2018).

4. CONCLUSION

The development of an electronic module on the Indonesian history during the reformation using a case method was developed through a process of analysis, planning, development, implementation, and evaluation. The materials presented in the module concern about the cognitive, psychomotor, affective, and motivational aspects. The developed electronic module facilitated students to hone and improve higher order thinking skills through problem solving activities based on a case. It is suggested that educators should develop case-based electronic modules to improve students' higher-order thinking skills.

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REFERENCE LIST

- Andayani, Endah, & Mustikowati, Rita Indah. (2022). *Case Method: Mengoptimalkan Critical Thinking, Creativity Communication Skills dan Collaboratively Mahasiswa Sesuai MBKM di Era Abad 21*. Jurnal Penelitian dan Pendidikan IPS (JPPI) 16 (1), 52-60. <http://ejournal.unikama.ac.id/index.php/JPPI>.
- Anderson, L.W. & Krathwohl, D.R. (Eds). 2015. Kerangka landasan untuk pembelajaran, pengajaran, dan asesmen: revisi taksonomi pendidikan Bloom. (Terjemahan Agung Prihantoro). Yogyakarta: Pustaka Pelajar.
- Danilin, R. (2021). Case method in the students university foreign language education. *Tambov University Review. Series: Humanities*, 95-106. <https://doi.org/10.20310/1810-0201-2021-26-195-95-106>
- Daryanto, 2013. *Menyusun Modul Bahan Ajar untuk Persiapan Guru dalam Mengajar*. Yogyakarta: Gava Media.
- Deluca. 2011. The GRIDc Project Developing Students' Thinking Skills in a Data-Rich Environment. *Journal of Technologofy Education*. 23. <https://doi.org/10.21061>
- Diky Aprianto, Nurul Umamah, Sumardi. 2017. *Development of E-Learning Module: Historical Culture Society Based on Local Genius*. *Jurnal Historica* vol. 1 no.2 hal 6
- Dony, Sugianto, et.al, 2013. *Modul Virtual Multimedia Flipbook Dasar Teknologi Digital*. *Jurnal INVONTEC*, hal 102.
- Jogiyanto. 2006. *Metode Kasus*. Jakarta: Andi.Sanjaya, 2006

- Kulshrestha, R. (2021). Effective Use of Case Method as a Pedagogical Tool. *Book Chapter: Case Method for Digital Natives*. India: Bloomsbury Publishing
- Lightner, S., Bober, M. J., & Willi, C. (2010). Team-Based Activities To Promote Engaged Learning. *CTCH*, 55(1), 5–18. <https://doi.org/10.3200/CTCH.55.1.5-18>
- Nazgul, K., Anar, B., Baglan, Z., Moldir, S., Sadvakasova, G., & Nishanbayeva, S. (2020). Preservice Teachers ' Opinions on the Use of Technology in Education. *International Journal of Emerging Technologies in Learning*, 15(23), 182–192. <https://doi.org/https://doi.org/10.3991/ijet.v15i23.18831>
- Nina Ikhwati Wahidah, Nurdin Ibrahim, Suyitno Muslim, 2019. “E-Module: Design A Learning Material With Rowntree And Hannafin Model For Higher Education” *International Journal Of Scientific & Technology Research* Volume 8, Issue 12. Hal 7
- Nugroho, A., Bramasta, D., & Pamijo. (2018). The The Implementation of Case Study Method to Develop Student's Activities and Characters. *Jurnal Sains Sosial dan Humaniora*, 2(2), 175-178. <https://doi.org/10.30595/jssh.v2i2.3349>
- Seidel, R., & Godfrey, E. (2005). Project and Team based Learning: An Integrated Approach to Engineering Education. *4th ASEE/AaeE Global Colloquium on Engineering Education*.
- Suarsanaga, Mahayukti, 2013. *Pengembangan E-Modul Berorientasi Pemecahan Masalah Untuk Meningkatkan Keterampilan Berpikir Kritis Mahasiswa*. Jurnal ISSN , Vol. 2, No. 3. hal
- Zehrihun, Z. Beisshunzein, J & Van Os, W. 2012. Student Learning Experience as Indicator of Teachin Quality. *Educational Assessment, Evaluation and Accountability*, 24. <http://dx.doi.org/10.1787/19939019>