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Digital Literacy- Based Case Method Lecture Model for Strengthening Student Critical Thinking

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ABSTRACT

The change in the learning paradigm from traditional learning models to digital literacy-based case methods involves several changes in habits, which ultimately require each individual to adapt and complete all activities from time to time. Therefore, digital competence is important in the learning process. Using good reading skills can support successful learning. Interest in reading books has decreased because it has been replaced by a new method, screen-based reading behavior. This has aroused researchers' interest in discussing the importance of digital literacy. The case method is the learning model that can support students' digital competence in participating in learning and improving critical thinking. This study employs a 4-D development paradigm (Four-D Models) to create cutting-edge goods in the shape of digital literacy-focused case study lecture model project modules. The produced product's feasibility is confirmed through the validation procedure and implementation test to ensure the creation of the final product. The study took place in Pekanbaru, Riau Province, between March and June 2023. The data analysis methods utilised included observation, documentation studies, interviews, FGDs, data reduction, analysis, data interpretation, and data triangulation. Conclusions can be derived from the outcomes of the data analysis. This digital literacy-based case method lecture innovation, initially designed for monetary economics lectures, can be applied across all courses to enhance critical thinking skills in other scientific disciplines and facets of life. We anticipate that this marks the commencement of advancements in lecture innovation and development.

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1. INTRODUCTION

Graduates of the undergraduate program must have the ability to think critically. As the decision of the Minister of Education and Culture of the Republic of Indonesia No. 49 of 2014 concerning National Higher Education Standards, Article 6 states that graduates of undergraduate programs must have

general skills, namely the ability to apply logically, critically, systematically and innovative thinking in the context of developing or applying knowledge and technology, which pays attention to and implements human values according to their field of expertise. This can be achieved with the 4Cs, which are 21st-century competencies consisting of: Critical Thinking Skills, Creative Skills, Communication Skills, and Collaboration Skills. The four pillars contain specific skills that must be developed in learning activities, including critical thinking. Critical thinking skills also train individuals to choose the right/best solution to a problem (Sari, Amirudin & Soetjipto, 2013). Life skills that everyone needs to develop to be successful, including critical thinking. Critical thinking is a skill that every individual must have in order to be able to react to problems that arise (Dhewi, 2022). The Indonesian Education System must also support this critical thinking in the field of learning in the school environment.

Technological readiness and connections must also be considered, making digital literacy a student's critical thinking strategy (Dhewi, 2022). Digital literacy is a 21st-century skill that students must master (Leahy et al., 2016). In this case, students are able to use, manage, integrate, evaluate, and create information (Jongsermtrakoon & Nasongkhla, 2015; Wilhelm, 2006). Akayoglu et al. (2020), digital literacy can also be interpreted as technical skills (use of digital tools) and functional skills (use of digital tools for professional and personal gain). In addition, in the era of Society 5.0, critical thinking is needed so that development can run well, accurately, and as expected. Digital literacy is very important and is interpreted as the ability to understand, analyze, manage, and evaluate information using digital technology (Kintoko & Mulianingsih, 2022). The presence of digital communication technology, the internet, computers, and smartphones has changed the way students exchange information. In practice, it can be observed that interest in reading books has decreased, because it has been replaced by a new way of reading on mobile screens (screen-based reading behavior). Screen reading behavior is characterized by spending a lot of time surfing the web, not continuing reading (non-linear reading), only occasionally for a short time, and being selective about what is currently popular today.

The change in the learning paradigm from the traditional learning model to a case method learning model based on digital literacy involves several changes in habits, which ultimately require each individual to adapt and manage all activities in accordance with the times. Literacy is considered important in the learning process, so reading skills need to be applied. Digital literacy in learning and assessment is an effort to provide experience in designing web-based learning and assessment and its implementation in the learning process (Fitriyani & Nugroho, 2022). Literacy, along with communication, collaboration, critical thinking, and innovation, is a talent that society expects in the global environment of the 21st century.

Ensuring the quality of learning is the responsibility of universities. One implementation of the Free Learning Campus Policy is contained in Permendikbud 03 of 2020 concerning National Higher Education Standards and Decree of the Minister of Education and Culture of the Republic of Indonesia No. 3/M/2021 concerning Main Performance Indicators of State Universities. In this case, the University's annual goal is eight KPIs. One of them is IKU 7, which is a collaboration and participation-based course. To improve the quality of learning, it is necessary to update the learning model. Hamruni (2012) suggests that the learning model is a way of presenting learning material to students to achieve predetermined goals. In the learning process, lecturers must improve their teaching skills so that students can absorb learning well. The learning model that can support students' digital competence in participating in learning and improve students' critical thinking is the case method. Problem-based learning also develops discipline, curiosity (critical), the ability to work together (mutual cooperation and democracy), responsibility, honesty, education, loyalty, and love for the motherland (Hendikawati et al., 2016). In addition, case study-based learning, where problem-based activities are important activities in learning (Juliawan., 2012; Utomo, T., Wahyuni, D. & Hariyadi, S., 2014; Fauziah et al., 2017). Case study-based learning in lectures can also improve student understanding and character (Afandi et al., 2017; Dwiyanti et al., 2018; Supriadi et al., 2020).

In addition, it is very important to create a fun learning process. According to Salu and Tadius (2018); Fakhrurrazi (2018) thinks that learning is fun if it can motivate students to participate in the learning

process. The learning model, in this case, offers an increase in effective collaborative skills and digital literacy, which increases students' curiosity to think critically and analytically and use appropriate learning resources together (Meset et al., 2011). In line with that, Prasutri et al. (2019) suggest that adopting a problem or case-based model can improve students' digital literacy and collaborative skills. Maguna (2016) states that by specifying a problem, critical thinking skills can be identified correctly. Therefore, it is important to apply digital expertise in case-based learning to be proficient in technology and critical thinking.

Innovation of the digital knowledge-based lecture model is one of the important elements needed in the teaching process. With this innovation model, a digital knowledge-based case method project module will be applied, which can help streamline learning activities and strengthen students' argumentation and reflective thinking skills. This project module will be designed in the Monetary Economics course. It is a compulsory and important course for students to acquire additional in-depth knowledge and a good understanding of economic concepts. The Monetary Economics course has the ultimate learning goal of preparing students to be digitally literate and to be competitive in the 21st-century world. We hope that this will be the first form of innovation and development of better teaching in the future.

2. METHODS

This research is a development research (R & D). The research and development method is research used to produce specific products and test the effectiveness of these products (Marwanti et al., 2022). Research and development is suitable for innovation research and research on new models, module products, processes and wants to measure efficiency, productivity, and quality. The model used in this research and development is the 4D model (Four D Models), according to Thiagarajan. This development model was chosen because it aims to create innovative products in the form of case method lecture project modules. The 4-D development model consists of 4 main stages, namely: Define, Design, Develop, and Disseminate. The application of the main steps in this development research does not necessarily follow the original version but is adapted to the characteristics of the subject and the place of origin of the examinee. In addition, the model to be followed will be adjusted to the development needs in the field. The following steps of the development procedure in this study are:

a. Defining stage
   Defining, in this case, includes determining and defining the need for the development of Case Study-based Lecture Project Modules in the learning process on campus. In this case, the researcher conducted a preliminary study related to the current learning conditions, analyzed the character of students, and analyzed the characteristics of the students.
b. Design stage
   The design stage's purpose is to design the initial form of the Case Study-Based Lecture Project Module product for Strengthening Student Critical Thinking. Instructions for implementing the design or systematics of making Case Study-Based Lecture Project Module products are written in detail at this stage.
c. Development stage
   This stage is to produce an initial draft of the product by conducting the validation stage and the Practicality stage. Products that have been designed (the initial draft of the Project Module) will be consulted and validated by experts (education experts and material experts). Products that have been validated will be carried out with limited trials/implementation and broad tests in lecture classes. Furthermore, revisions are made based on the results of the implementation test. The product is then evaluated to determine whether it is feasible or not. If it is feasible, the final product is produced. The final Project Module can be applied in the Monetary Economics lecture process by lecturers in universities.
d. Dissemination stage

At this stage, the development product can be used by lecturers in lecture classes with the aim of improving the quality of lectures and increasing students' critical thinking based on digital literacy. The results of the product development of this Project Module also need to be conveyed through scientific writings/articles to be presented at seminars/conferences at both national and international levels.

3. FINDINGS AND DISCUSSION

This research and development is research that focuses on the goal of producing or innovating a product that is relevant to learning activities and relevant to current student needs. Borg & Gall (1983) explained that development research is an attempt to develop and validate different products for use in the educational process. Therefore, the development of the model in this research framework can be carried out as a product of the case method project module. The following are the steps for developing the case method lecture project module in this study:

3.1 Definition Stage

This first step was carried out with the aim of identifying the need for innovation in lecture models in the economics education study program. In this case, a preliminary study of the current learning conditions and development needs in monetary economics courses will be conducted by creating innovative products in the form of digital literacy-based case method lecture project modules . Based on the results of observation and evaluation at the Social Sciences Department of FKIP, University of Riau, especially in the monetary economics course, it was found that the course was in accordance with the current curriculum. However, during the course of this study, there were still many learning difficulties and obstacles, including digital access to the learning process and the unavailability of learning modules in accordance with the teaching curriculum, especially the *case method.* Therefore, there is a need for innovative learning models that can be used effectively by students independently or in groups. In addition, contextual learning in the monetary economics learning content has not been developed, so students' potential and capacity have not been maximized in learning activities. For this reason, it is necessary to innovate digital literacy-based lecture models to improve students' critical thinking. Critical thinking by integrating digital literacy.

3.2 Design Stage

Case method lecture project module based on digital literacy. At this stage, the design plan or product system of the project module is prepared. The case method lecture model based on digital literacy is written in detail. The content of this project module is always related to the topic of the lesson plan, but in the learning and discussion process, it is necessary to include various questions and/or critical thinking values. This can be achieved through a case-based (problem-based) approach supported by a digital literacy approach. This can influence the focus of lectures, moving beyond mere topic coverage to enhance their significance. Studying real-life phenomena can enhance the learning process and boost student academic performance. (Oktaviyanti & Novitasari, 2019; Misnah, 2020).

3.3 Development Stage

At this stage, the product that has been designed (initial draft) will be discussed or validated by 3 experts from FKIP Riau University lecturers. After completing the digital literacy -based case method project module product , an evaluation step will be carried out as the final step. This step is intended to find out whether the products developed by researchers are valuable and practical to apply in class. For the level of validity, the researcher asked for the help of 3 validators. According to the results of expert testing, we can see in the table below:

Table 1 . Product Validation Results by Experts

Validators	Validation (%)	Qualification
Content (*Content*)	85%	Valid and can be used without revision
language	82%	Valid and can be used without revision
Design	78%	Valid and can be used a little revision
Total (%)		245%
Average product validity (%)		81.67%

(Source: Researchers, 2023)

Next, the project module will be implemented for students enrolled in the Economics Education Study Programme at the Faculty of Teaching and Education, University of Riau. Tessmer's formative evaluation was utilised to assess the practicality of the product under development. Tessmer's formative evaluation trial stages consist of expert review, one-to-one, small group, and field test (Prastyo, AA, et al., 2019). The field test phase was omitted in this study as it only resulted in a case method lecture project module product, which did not align with the research objectives. The validation process concentrated on three assessment indicators: content, language, and design. Experts in the field of education were involved in the validation process to guarantee the quality and correctness of the module. The validation process results indicated that the module met the necessary standards for practicality and effectiveness in teaching.

The product development trial phase in the one-to-one evaluation step guides student groups to study prototype 1 project module. During the trial process, the researchers communicated to find out the difficulties students faced in using the project module. At the end of the lesson, students were asked to fill out a questionnaire to find out their responses to the project modules that had been used during the lesson. The results of the student response questionnaire assessment can be seen in the table below:

Table 2 . Student Response Questionnaire Assessment Results On the *One-To-One Stage*

No	Indicator Aspect assessed	Percentage (%)
1	Benefits for additional insight	87.25%
2	Information clarity	85.76%
3	Providing motivation	80.56%
4	Effective and efficient use of language (clear and concise)	86.07%
5	Clarity of instructions for using teaching materials	87.02%
6	Font usage: type and size	84.72%
7	Layouts	86.25%
8	Illustrations and drawings	80.02%
9	Display design	84.68%
Average		**84.70%**
Criteria		Practical

(Source: Researchers, 2023)

From the results of the product validation assessment by experts, student response questionnaires and suggestions on prototype 1 of the digital literacy-based case method lecture project module were revised. The results of this revision were called prototype 2, and an evaluation was carried out for the next stage, namely, the small group evaluation stage. final evaluation in this study. At this stage, the researcher tested prototype 2 on 37 students who were divided into 6 groups. Each group is welcome to discuss and study prototype 2, which they have used during the learning process. The results of the student response questionnaire assessment can be seen in the table below:

Table 3 . Student Response Questionnaire Assessment Results On the *One-To-One Stage*

No	Indicator Aspect assessed	**Percentage (%)**
1	Benefits for additional insight	88.67%
2	Information clarity	86.72%
3	Providing motivation	82.62%
4	Effective and efficient use of language (clear and concise)	87.45%
5	Clarity of instructions for using teaching materials	90.25%
6	Font usage: type and size	87.82%
7	Layouts	88.05%
8	Illustrations and drawings	82.52%
9	Display design	88.46%
Average		**86.95%**
Criteria		Very Practical

(Source: Researchers, 2023)

The trial was conducted on students to determine if the project modules created by researchers were effectively utilised by students for educational purposes. Researchers enhanced prototype 2 based on feedback from students, resulting in the creation of prototype 3, which served as the final product in the study. Prototype 3 was discovered to be extremely efficient in captivating pupils and improving their educational experience. The trial findings showed a notable rise in student engagement and contentment with the project courses.

A case method lecture document that contains Learning Outcomes (CPL), descriptions, objectives, steps/flow of project activities, and assessments needed to carry out a project to strengthen students' critical thinking in the Monetary Economics course. This digital literacy-based case method lecture project module product contains lecture projects with themes that encourage students to think critically, such as: 1) Bankless Money Offerings; 2) Money Multiplier; 3) interest rate targets or money supply; 4) uncertainty of time interval (Lag); 5) The impact of inflation on the economy; 6) Alternative Monetary Management; 7) International Payments. The case method lecture model project module is expected to be a guide for students in Monetary Economics courses, especially in case method-based learning.

3.4 Stage of Dissemination

The product is now ready to be distributed and utilised by instructors and learners during lectures. This seeks to enhance the content, provide a deeper understanding of Monetary Economics, and improve students' critical thinking skills through digital literacy. The study's products consist of printed materials and digital files in the form of books that can be utilised to enhance both synchronous and asynchronous lectures. In addition, the study disseminated research results and products by publishing articles in national journals. This ensures that the research results are disseminated to a broader audience and add value to the academic community. Workshops and seminars can be arranged to delve deeper into and examine the research results.

Discussion

To develop a thorough grasp of the principles of Monetary Economics and their practical implications, it is essential to create a lecture document using the case method. This document should include Learning Outcomes (CPL), descriptions, objectives, steps/flow of project activities, and assessments. These components will help enhance students' critical thinking skills in the Monetary Economics course. This digital literacy-based case method lecture project module product contains lecture projects with themes that encourage students to think critically. At the development stage, the average of product validation results by experts is 81,67%. Then, student response questionnaire

assessment results are 84, 70%, and 86,95%. The project module also includes interactive elements such as quizzes and discussions to further engage students in critical thinking. Overall, the high validation and assessment results indicate that the module effectively enhances students' critical thinking skills in the field of Monetary Economics. The interactive elements within the project module serve to provide students with a hands-on learning experience, reinforcing their understanding of complex economic concepts.

This comprehensive approach ensures that students are actively engaged and able to apply critical thinking skills in real-world scenarios. By incorporating interactive elements, students are able to participate actively in their learning process, leading to a deeper understanding of the subject matter (Fakhrurrazi, 2018). This hands-on approach not only enhances critical thinking skills but also prepares students for practical application in the field of Monetary Economics. Overall, this teaching method helps students develop a strong foundation in economic theory while also gaining practical skills that can be applied in their future careers. By bridging the gap between theory and practice, students are better equipped to succeed in the dynamic field of Monetary Economics. Through interactive simulations and real-world case studies, students are able to see firsthand how economic principles are applied in the financial sector.

This experiential learning allows students to make connections between theoretical concepts and real-world scenarios, better preparing them for the complexities of the field. Furthermore, students have the opportunity to engage with industry professionals and participate in internships, further enhancing their understanding of Monetary Economics (Maguna, 2016). This hands-on approach not only deepens their knowledge but also provides valuable networking opportunities for future career advancement. By gaining practical experience and building relationships within the industry, students are better equipped to succeed in the competitive field of Monetary Economics. This combination of theoretical knowledge and real-world application sets them apart as well-rounded professionals ready to tackle challenges in the financial sector.

4. CONCLUSION

The Case Method Lecture Project Module is designed to promote digital literacy among students by engaging them in problem-solving activities provided by lecturers. This approach aims to enhance students' understanding of the study material and develop their digital skills, thereby improving their critical thinking abilities. Utilising certain elements of learning can be facilitated by innovative project modules within the case method lecture model used in lecture practice. It has addressed several difficulties and developed an innovative module for a monetary economics lecture project to enhance students' critical thinking and digital abilities. Other economics instructors and lecturers from different study programmes at the university can also implement the case method lecture project module. It is crucial to emphasise additional 21st-century skills in education, including those that enhance the learning process and aid in the development of students' critical thinking values. Additional research can be conducted to enhance the quality of this work and establish it as a valuable resource for tertiary students.

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