Jurnal PAJAR (Pendidikan dan Pengajaran)
Volume 9 Nomor 2 March 2025 | ISSN Cetak : 2580 - 8435 | ISSN Online : 2614 - 1337
DOI : http://dx.doi.org/10.33578/pjr.v9i2.10139

Case Study-Based Learning Media Innovation Integrated With Lumi Education to Improve Student Critical Thinking

Mifta Rizka, Silvia Permatasari, Jumili Arianto, Filma Alia Sari, M. Yogi Ryantama Isjoni, Sahara

Universitas Riau, Pekanbaru, Indonesia
mifta.rizka@lecturer.unri.ac.id, silvia.permatasari@lecturer.unri.ac.id, jumili.arianto@lecturer.unri.ac.id, filma.alia@lecturer.unri.ac.id, m.yogi@lecturer.unri.ac.id, sahara@unja.ac.id
corresponding author: *mifta.rizka@lecturer.unri.ac.id*

ABSTRACT

The development of technology has triggered various innovations in the world of education, especially in learning media which plays an important role. With the increasing need for digital-based learning to support distance learning, the development of digital technology-based learning media is very important. In addition, case study-based learning is an important aspect in improving students' critical thinking skills. To answer these challenges, Lumi Education integrated case study-based learning media was designed. This research aims to develop learning media based on case studies integrated with Lumi Education to improve students' critical thinking skills. This research was conducted at the Faculty of Teacher Training and Education. Riau University. This research procedure follows the 4-D development model. However, it only reaches the development stage, which includes three stages: Define, Design and Develop.Defining stage includes analyzing needs, developing case concepts, designing case structures and determining supporting materials, Second, the Design Stage which includes making materials, designing learning media based on case studies and media validation by experts. From the results of media validation by media validator material validators, the case study-based learning media integrated with Lumi Education is categorized as feasible and can be applied in the lecture process. This development produces practical and high-quality media products that aim to improve students' critical thinking skills.

Keywords*: *critical thinking skills, learning media, case study, lumi education

Submitted	Accepted	Published
09 December 2024	16 March 2025	30 March 2025

Citation	:	Rizka, M., Permatasari, S., Arianto, J., Sari, F.A., Isjoni, M.Y.R., & Sahara. (2025). Case Study-Based Learning Media Innovation Integrated With Lumi Education to Improve Student Critical Thinking. *Jurnal PAJAR (Pendidikan dan Pengajaran), 9*(2), 243-249. DOI: http://dx.doi.org/10.33578/pjr.v9i2.10139.

INTRODUCTION

Current technological developments have triggered innovations in education. Technology is a relevant learning resource. In the lecture process, lecturers can develop technology-based learning media. In addition, with the increasing need for distance learning, digital technology-based learning media can be the main choice in the lecture process. In reality in the field, the lecture process in higher education in general has not significantly changed academic insight and behavior. This can be seen from the point of view, the way of thinking of students or graduates of higher education who show no difference with people who do not receive higher education. Ideally, learning in higher education can develop students' hard skills and soft skills, but at present the learning process focuses more on strengthening the material or strengthening hard skills. One of the soft skills that need to be developed in higher education is the ability to think critically and problem solve. Critical thinking skills are the ability to analyze, evaluate and solve problems in a rational and structured manner. This critical thinking ability uses logic, assesses objectively and makes decisions based on evidence that has been thoroughly tested. This critical thinking ability is not only applicable in the context of lectures but is very useful in life. The ability to think critically is one of the most important skills for students to have in today's digital era (Setyawati et al., 2020) (Yunus et al., 2020). This is because the ability to think critically is a strong foundation for students in the midst of increasing digitalization that cannot be stopped (Alwan,

Jurnal PAJAR (Pendidikan dan Pengajaran)
Volume 9 Nomor 2 March 2025 | ISSN Cetak : 2580 - 8435 | ISSN Online : 2614 - 1337
DOI : http://dx.doi.org/10.33578/pjr.v9i2.10139

2022). Critical thinking or higher-order thinking is the skill of processing all information, observations and problems obtained, by making decisions on what to do which must be accompanied by logic. This makes critical thinking important, especially in the learning process (Yohana, et al., 2018). Critical thinking is an important ability that must be possessed by students in today's digital era. More advanced thinking skills such as logical reasoning, critical thinking and reasoning skills are needed in everyday life, not only for academic performance (Muntari et al, 2022).

One form of improving critical thinking that can be done is case study-based lectures. Case study-based learning in lectures where problem-based activities are important activities in learning (Juliawan, 2012; Utomo, T., Wahyuni, D., &Hariyadi, S., 2014; Fauziah et al., 2017). One of the learning strategies that can be used is the use of case study-based learning media integrated with digital learning platforms such as Lumi Education. Case study-based learning can improve students' critical thinking skills because it encourages them to be actively involved in analyzing and solving real problems (Alwan, 2022). On the other hand, integration with digital platforms such as Lumi education can create a more interactive and interesting lecture environment that can increase student motivation and involvement in the learning process (Alwan, 2022; Prastowo et al., 2019).

The purpose of this research is to see how the condition of student lectures at FKIP Riau University in terms of students' critical thinking skills. In addition, it intends to find out the form of learning media innovation based on case studies integrated with Lumi Education in improving students' critical thinking skills. To achieve the purpose of the research, this research aims to innovate learning media based on case studies integrated with Lumi Education which is expected to support improvement.This learning media is designed in the learning strategy course which is a compulsory course taken by students of the Faculty of Teacher Training and Education. The purpose of this learning media is designed to add insight and to improve students' critical thinking skills through the cases presented. The selection of appropriate learning media and in accordance with the characteristics of the material and the learning process will greatly affect the implementation of learning (Doni, et al, 2022). In accordance with the demands of learning in the Era of Revolution 5.0, interactive learning media is needed that can help students in the lecture process. One form of interactive learning media is Lumi Education-based learning media. This application is still rarely used in the lecture process. Lumi education is a desktop application for creating interactive teaching materials that provides a complete selection of content and can be accessed for free (Ogris, 2022).

This research is different from previous research because it is in accordance with the Outcome Based Education curriculum which requires lectures to use case study or project based learning methods. This research supports the demands of the curriculum. Case study-based learning media integrated with lumi education is expected to improve 21st century skills that must be mastered by students, especially critical thinking skills. In addition, with the use of learning media integrated with Lumi Education, learning is expected to be more interactive and interesting for students.

METHOD

This research is a development research (R &D). This research and development method is research used to produce certain products and test the effectiveness of these products. This research is appropriate for innovating and finding new models, media products, procedures, and wants to measure their effectiveness, productivity and quality. The model used in this research is the 4D model (Four D Models). According to Thiagarajan (1974), this development model was chosen because it aims to produce a product in the form of learning media based on case studies integrated with Lumi Education. The developed product is then tested for feasibility through a validity process and implementation test to produce a final product in the form of Case Study-based learning media integrated with Lumi Education to improve students' critical thinking skills. Due to time constraints, this development research only reached the development stage. It is hoped that further research can be disseminated to students and applied in the lecture process.

Jurnal PAJAR (Pendidikan dan Pengajaran)
Volume 9 Nomor 2 March 2025 | ISSN Cetak : 2580 - 8435 | ISSN Online : 2614 - 1337
DOI : http://dx.doi.org/10.33578/pjr.v9i2.10139

This research was conducted at the Faculty of Teacher Training and Education, Riau University, especially in the Economic Education Study Program in the learning strategy course. The research time was conducted in July - October 2024. This development procedure consists of four main stages, namely, First, Define, at this stage the researcher determines and defines the need for the development of Case Study-based textbooks in the lecture process. At this stage a preliminary study was carried out related to the conditions of learning strategy lectures. Second, the design stage, researchers design or design a case study-based learning model integrated with Lumi education to improve students' critical thinking skills. At this stage, instructions for implementing the design or systematics of making learning media products based on case studies integrated with Lumi Education are prepared. Third, the Development Stage (develop). This stage produces the initial design of the product to carry out validation and practicalization stages.

The case study-based learning media that has been prepared will be consulted and validated to experts. Fourth, the dissemination stage (deeseminate), at this stage the case study-based learning media products integrated with Lumi Education can already be tested by lecturers in the classroom. The results of the development of this learning media product also need to be conveyed through scientific articles. The data collection techniques used in this article are observation, interview, and documentation study. The money data analysis technique used is descriptive-qualitative analysis technique. The technique used includes observation results, documentation studies, interviews, data reduction, analysis, data interpretation and data triangulation. From the results of data analysis can be drawn conclusions. The results of the analysis can be developed in the form of case study-based learning media results integrated with Lumi Education to improve students' critical thinking skills.

RESULTS AND DISCUSSION

Case study-based lectures have proven effective in improving students' critical thinking skills. This ability encourages students to be actively involved in analyzing situations, identifying problems, and finding the right solution in solving cases given by lecturers. By combining the case study approach and the integration of the Lumi Education digital platform, learning media can be developed that can stimulate the development of critical thinking skills. This ability is a strong foundation in building a national civilization in the midst of increasing digitalization. Learning Media is a bridge between educators and students or vice versa in the process of delivering learning materials. The selection of appropriate learning media and in accordance with the characteristics of the material and the learning process will greatly affect the implementation of learning (Doni, et.al, 2022) Therefore, learning strategies such as the case method, technology-assisted learning, Mobile Learning can be an effective solution in building students' critical thinking skills (Alwan, 2022). The integration of the Lumi Education digital platform in the development of case study-based learning media can provide a more interactive and challenging learning experience for students. In this integrated learning media, Lumi education allows the creation of interactive media content, such as quizzes, interactive videos, simulations and others that make students actively participate in the interactive learning process. The features of Lumi Eduation also provide immediate feedback on students' answers thus strengthening critical thinking and problem solving skills. The following are the steps in the development of Lumi Education Integrated study case-based learning media.

Defining Step

This definition stage aims to determine learning needs and objectives. In this stage, an initial analysis is conducted to understand the existing problems or needs. The steps included in this stage, First, analyze the needs to identify the material that needs to be taught, Second, analyze the learning objectives to determine the results to be achieved and. To analyze the needs, a preliminary study was conducted on the state of learning strategy lectures. This analysis is also adjusted to the applicable curriculum, namely the OBE (Outcome Based Education) curriculum. Learning in Higher education uses case-based and project-based learning. Based on this phenomenon, case-based learning is needed. To support this case-based lecture process, Lumi Education's

Jurnal PAJAR (Pendidikan dan Pengajaran)
Volume 9 Nomor 2 March 2025 | ISSN Cetak : 2580 - 8435 | ISSN Online : 2614 - 1337
DOI : http://dx.doi.org/10.33578/pjr.v9i2.10139

integrated case study-based learning media is needed. For the selection of case-based learning materials, it refers to the Semester Learning Plan. the following is the distribution of material that will be developed in the preparation of Lumi Education integrated case study-based learning media. After analyzing the material, the learning objectives or sub-learning outcomes of the course are analyzed. Based on the material analysis that has been carried out, the sub-course learning outcomes set are The analysis of these learning objectives also refers to the Semester Learning Plan. based on the material that has been determined, the sub-course learning outcomes that are in accordance with the material are students able to identify and cases in learning by integrating learning taxonomy based on relevant theories and relevant studies.

Design Step

The design stage is a crucial step where the concept or product developed is realized in a more concrete form. At this stage, the learning objectives of the learning material will be elaborated into a more detailed and systematic design. At this stage there are 4 steps taken in designing learning media based on Case Study Integrated Lumi Education as presented in the following diagram:

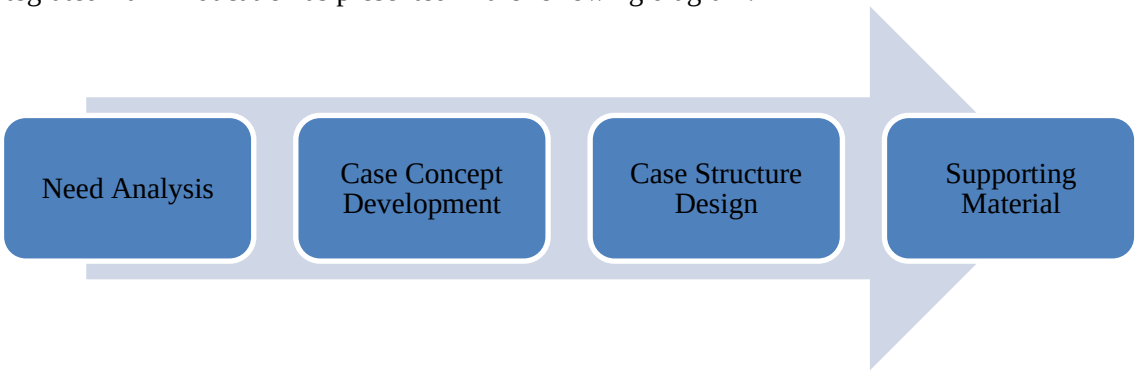

Figure 1: Learning Media Design Steps

Learning media design refers to the learning objectives or sub-course outcomes. From the Sub CPMK obtained is learning based on relevant theories and relevant studies. After the learning objectives are set, the next step is the development of the case concept. In the development of this learning media, the case chosen is the application of strategies, methods, models and approaches in the learning process. Students will be asked to analyze cases of how to apply strategies, models, methods, and approaches in the learning process, and find solutions to problems found in the given case related to learning strategies, models, methods, and approaches. The next step is the design of the case structure. In this case, the case is presented in the form of a learning video about the application of learning strategies in the learning process. The video presented is given clear instructions in accordance with the learning objectives to be achieved. After that, determine the supporting material, including material about learning models, learning approaches to learning methods and 21st century learning strategies..

Development Step

After making the initial design, the next step is to develop learning media based on case studies integrated with Lumi Education. The first step is the creation of materials to be included in the learning media integrated with Lumi education by configuring interactive features. The following is the distribution of materials that are included in the developed learning media:Setelah membuat desain awal maka langkah selanjutnya adalah mengembangkan media pembelajaran berbasis case study terintegrasi Lumi Education. Langkah pertama adalah pembuatan materi untuk dimasukkan kedalam media pembelajaran yang terintegrasi dengan Lumi education dengan mengkofigurasikan fitur-fitur interaktif. Berikut merupakan sebaran materi yang dimasukkan ke dalam media pembelajaran yang dikembangkan:

Jurnal PAJAR (Pendidikan dan Pengajaran)
Volume 9 Nomor 2 March 2025 | ISSN Cetak : 2580 - 8435 | ISSN Online : 2614 - 1337
DOI : http://dx.doi.org/10.33578/pjr.v9i2.10139

Table. 1 Distribution of Material Needs

Material
Module
21st Century Learning Strategies
Learning Methods
Learning Model
Learning Approach
Learning Video
Memory Game

After making the material, the next step is to design learning media based on case studies integrated with Lumi Education. The material that has been made is uploaded to the Lumi Education platform and configures interactive features such as interactive videos. After that, initial testing is carried out to ensure that all features function properly and the material is integrated smoothly. The following is the initial appearance of the case-based learning media designed using the Lumi Education platform:

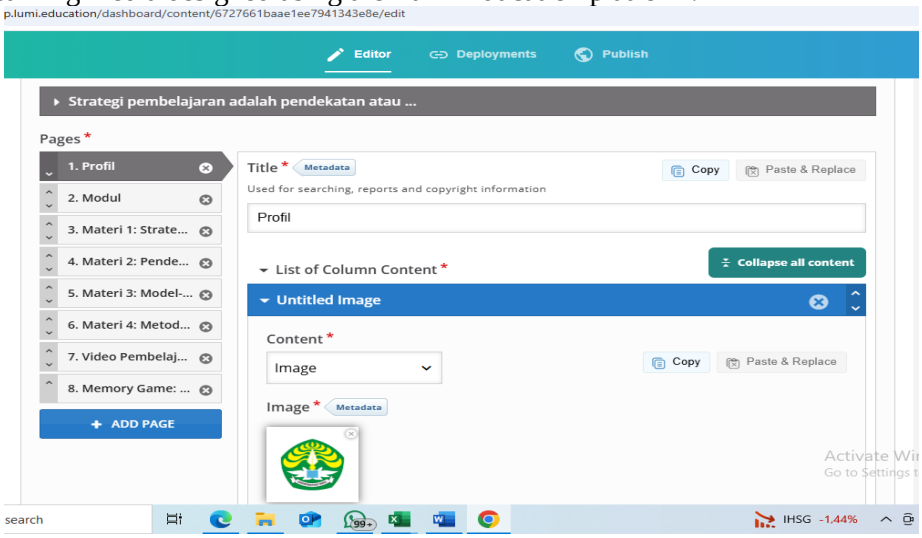

Figure 2. Lumi Education Case-Based Learning Media Initial Display

The next step in this development process is expert assessment. The case study-based learning media that has been designed is discussed to be validated by experts. In this case, it is validated by material experts and media experts. The results of the assessment of the validity of integrated case study-based learning media products are shown in the following table:

Table 2: Results of Media Validation by Experts

Validator	Hasil Validasi	Kualifikasi
Material Expert	85%	Valid and can be used without revision
Media Expert	83%	Valid and can be used without revision
Total		168%
Average validity of the product		84%

After the product is verified by experts, the next step is revision based on suggestions and input from the verifiers. From the validation test above, it can be concluded that the learning media based on case study integrated with Lumi Education, in general, is included in the good category and is suitable for use. Because

Jurnal PAJAR (Pendidikan dan Pengajaran)
Volume 9 Nomor 2 March 2025 | ISSN Cetak : 2580 - 8435 | ISSN Online : 2614 - 1337
DOI : http://dx.doi.org/10.33578/pjr.v9i2.10139

it has received a decent category, the final product in the form of learning media based on case studies integrated with Lumi Education can be applied in the lecture process.

Discussion

Case study-based learning is proven effective in improving students' critical thinking skills. This learning model encourages students to be actively involved in analyzing situations, identifying problems, and finding appropriate solutions. Learning that links theory with the real world in the lecture process is more meaningful so that it can improve student learning outcomes (Oktaviyanti & Novitasari, 2019; Misna, 2020). By incorporating case studies into learning media and supported by the Lumi Education digital platform, it can facilitate the development of students' critical thinking skills in today's digital generation. Learning strategies such as Problem Based Learning, technology-assisted learning, Mobile Learning, can be an effective solution in building students' critical thinking skills (Alwan, 2022). With the development of this learning media, it is expected to be able to improve students' critical thinking skills. This is in line with research (Rizka, et al, 2023) that case study-based learning can improve students' ability to think critically in solving the cases presented. Another benefit of this case study-based learning media is to increase student interest and motivation to learn because in addition to being based on case studies it is also integrated with the Lumi Education Platform so that the media designed becomes interactive and fosters student interest and motivation in the lecture process. This development research only reaches the development stage, for further research is expected to be disseminated and applied in the lecture process. This research is different from previous research because it integrates the Lumi Education learning platform in the design of case-based learning media. As a digital education platform, Lumi Education utilizes digital technology to present more interactive and interesting learning for students.

CONCLUSIONS AND RECOMMENDATION

The development of Lumi Education integrated case study-based learning media strongly supports case study-based learning. The development of Lumi Education integrated case study-based learning media consists of three stages, namely: First, the Defining Stage which includes analyzing needs, developing case concepts, designing case structures and determining supporting materials, Second, the Design Stage which includes making materials, designing case study-based learning media and media validation by experts. From the results of media validation by validators of case study-based learning media integrated with Lumi Education is categorized as feasible and can be applied in the lecture process. The results of the material expert validation of this learning media product obtained a score of 85% with valid qualifications and can be used without revision, while the media expert obtained a score of 83% with valid qualifications to improve students' critical thinking skills and contribute to learning.

Case-based learning using learning media integrated with the Lumi Education platform. For further research, it is hoped that there will be further research on case study-based learning media, especially its application in the learning process at the Faculty of Teacher Training and Education, Riau University.

REFERENCES

Alwan, Muhammad. (2022). Strategi Membangun Kemampuan Critical Thinking Pada Generasi Digital. Jurnal Al-Muta'Liyah: *Jurnal Pendidikan Guru Madrasah Ibtidaiyah*. 2(2). 19-27.

Doni,T.P.Y., Oriza, C., Citra, D., Hastuti., Hermi Z (2022). Electric drive training kit sebagai produk inovasi media pembelajaran praktikum mahasiswa pendidikan vokasi: Analisis uji praktikilitas. *JINoP (Jurnal Inovasi Pembelajaran)* , 8(1), 106-120

Fauziah, R., Abdullah, A.G., &Hakim, D. L. (2017). Pembelajaran saintifik elektronika dasar berorientasi pembelajaran berbasis masalah. *Inoovation of Vocational Tecnologi Education*, 9(2)

Jurnal PAJAR (Pendidikan dan Pengajaran)
Volume 9 Nomor 2 March 2025 | ISSN Cetak : 2580 - 8435 | ISSN Online : 2614 - 1337
DOI : http://dx.doi.org/10.33578/pjr.v9i2.10139

Khairani, E., Hasan., M., Fahmi. R., &Muhammad.A. (2022). Validitas Pengembangan Modul Pembelajaran Berbasis Project Based Learning Pada Mata Pelajaran Teknologi Informasi dan Komunikasi. *JRTI: Jurnal Riset Tindakan Indonesia.* 7(2). 71-76.

Rizka, M., Silvia.P., Filma.A.S., Muhammad.Y.R.I. (2023). Developtment of Case Study-Based Learning Strategy Textbook to Improve Critical Thinking Ability Of University Students. *Al-Ishlah: Jurnal Pendidikan. 16(3). 3064-3072.*

Setyawati., D. H. L., Fina, F., & Khamdun. (2020) Peningkatan Berpikir Kritis Siswa Sekolah Dasar Dengan Menerapkan Model Contextual Teaching And Learning Berbantuan Media Lempar Karet Pengetahuan. *Pendas: Jurnal Ilmiah Pendidikan Dasar*, 5(2), 130-139.

Thiagarajan, S., Semmel, D. S., & Semmel, M. I. (1974*). Instructional development for training teachers of exceptional children. In A sourcebook*. Indiana University, Bloomington, Indiana.

Ogris, A. (2022) Improving distance learning in a object oriented modeling lecture by enhacing digital media with H5P Software&Information Engineering. Availaibe at: www.tuwien.at.

Oktaviyanti, I., Novitasari, S. (2019). Analisis Penerapan Problem Based Learning pada Mata Kuliah Pendidikan IPS. *Musamus Jurnal Pendidikan Dasar, 50-58*

Utomo, T., Wahyuni, D., &Hariyadi, S. (2014). Pengaruh Model Pembelajaran Berbasis Masalah (Problem Based Learning) Terhadap Pemahaman Konsep dan Kemampuan Berpikir Kreatif Siswa (Siswa Kelas VIII Semester Gasal SMPN 1 Sumber Malang Kabupaten Situbondo Tahun Ajaran 2012/2013). *Jurnal Edukasi*,1(1)5-9

Yunus, A., Khoirul.I., & Durrotun, N. (2020). Konsep Model Problem Based Learning pada Pembelajaran IPS dalam Melatih Kemampuan Berpikir Kreatif Siswa. *Dirasah: Jurnal Study Ilmu dan Manajemen Pendidikan Islam*. 3(2). 80-89.

Yohana, Wuri, Santika, Hermien, Laksmiwati, Riza, Noviana Khoirunnisa (2018). Penerapan Model Problem Base Learning Untuk Meningkatkan Kemampuan Berpikir Kritis Mahasiswa. *Jurnal Pendidikan (Teori dan Praktik)* 3(1)