Journal of Innovation in Educational and Cultural Research

Volume 7 Issue 1 Year 2026 Pages 47-58
ISSN 2722-9688 | e–ISSN 2722-9696
http://jiecr.org | DOI: 10.46843/jiecr.v7i1.2392

Improving Students' Critical Thinking Skills by Developing and Implementing Case-Based Learning

Sani Safitri[1]*, Zahra Alwi[2], Endang Suwitri[3], Alfiandra[4], Muhammad Reza Arviansyah[1], Sri Imawati[5]

[1]*Faculty of Teacher Training and Education, History Education Program, Universitas Sriwijaya, Indonesia*
[2]*Faculty of Teacher Training and Education, Teacher Professional Education Program, Universitas Sriwijaya, Indonesia*
[3]*Faculty of Teacher Training and Education, English Education Program, Universitas Sriwijaya, Indonesia*
[4]*Faculty of Teacher Training and Education, Civic Education Program, Universitas Sriwijaya, Indonesia*
[5]*Master of World Literature in English, Nalanda International University, India*

*Correspondence to: *sani_safitri@fkip.unsri.ac.id*

Abstract: One of the most crucial competencies for educators is the ability to create meaningful and effective learning experiences. This research aims to develop and implement learning tools—specifically lesson plans and textbooks—using the Case approach for a Student Development course. The study employs Rowntree's development model, consisting of three main stages: planning, development, and iterative evaluation with revisions based on expert input and trial results. The lesson plans developed in this study achieved a strong average validity score of 4.57, indicating a high level of alignment with learning objectives and curriculum standards. The textbooks that support the lesson plan were also validated, scoring 3.98 in terms of design and 4.203 for content quality, both considered valid to very valid. Practicality testing involved both individual and group trials, demonstrating that the materials are user-friendly, applicable, and effective in classroom settings. To assess effectiveness, students' critical thinking skills were measured before and after the implementation. Results showed a significant increase, with pre-test scores averaging 61.6 and post-test scores reaching 91.8, yielding an N-gain of 0.786, which is classified as high. These findings demonstrate that Case-based learning tools can foster student engagement, contextual understanding, and higher-order thinking skills, making them highly effective for educational use in similar contexts.

Keywords: *case; critical thinking; learning design; lesson plan; textbook*

Recommended citation: Safitri, S., Alwi, Z., Suwitri, E., Alfiandra., Arviansyah, M. R., & Imawati, S. (2026). Improving Students' Critical Thinking Skills by Developing and Implementing Case-Based Learning. *Journal of Innovation in Educational and Cultural Research*, *7*(1), 47-58.

INTRODUCTION

In the 21st century, students need to acquire key skills such as creativity, critical thinking, communication, and collaboration—commonly known as the 4Cs. To support this, classroom activities should be intentionally structured to nurture these competencies. Creative thinking entails utilizing imagination to develop effective solutions to academic tasks and challenges, while critical thinking involves logical reasoning and making informed decisions about beliefs and actions (Luh et al., 2025; Arviansyah & Safitri, 2022). Educators—whether in the role of teachers, lecturers, tutors, instructors, or trainers—play a pivotal role in establishing learning environments that support the growth of these core skills. To do so, they must begin by crafting a well-rounded learning design that promotes the development of students' critical and creative thinking skills. The process of creating such a framework is generally brief, as the educational outputs involved carry minimal risk and primarily affect the students for whom they are intended. This targeted approach allows for more effective skill enhancement. By emphasizing the 4Cs, educators can better prepare students to thrive in the modern world, enabling them to tackle complex issues and work collaboratively in diverse settings (Mulyatiningsih, 2015; Jumini et al., 2025).

One of the most effective methods for strengthening students' critical thinking skills is the case-based learning approach (Bridgman et al., 2018), which aims to enhance students' analytical skills, problem-solving skills, and overall intellectual development. By introducing real-life problems that require thoughtful solutions, this approach actively engages students in meaningful learning experiences. It supports the development of critical thinking by placing students in realistic scenarios that demand logical reasoning and decision-making (Darojat et al., 2025; Arum & Minangwati, 2014). The case method centers on active student participation, making them key agents in their own learning process. It promotes the practical application of knowledge and skills through investigation and problem analysis. This method challenges students to explore real-world issues and devise feasible, solution-driven responses (Ahmad, 2020).

Several studies have demonstrated that case-based learning outperforms traditional learning methods, especially in promoting critical thinking and encouraging interactive classroom dynamics (Rahmawati & Indriayu,

2024). This approach also enhances students' skills in identifying and resolving problems (Eli, 2017), supports analytical thinking and decision-making, and stimulates critical and innovative thought processes (Wira et al., 2025). Moreover, it enables students not only to learn how to solve problems but also to understand the rationale behind specific solutions, thereby deepening their conceptual understanding. Case-based learning further contributes to building students' confidence, fostering creativity, and encouraging the examination of issues from multiple critical perspectives (Jamaludin & Alanur, 2021). It promotes deeper engagement with content, helps develop information literacy, and cultivates a more reflective and analytical approach to learning. As the educational landscape continues to evolve, improving the quality of learning becomes essential. This ongoing enhancement represents a dynamic and sustainable policy direction designed to meet future educational demands (Arviansyah & Shagena, 2022).

In addition to enhancing students' cognitive growth, learning through case-based approaches also positively influences their motivation, engagement, and academic success. By promoting active involvement and inquiry-driven exploration, this method fosters a classroom atmosphere where students engage with real-life scenarios, apply critical thinking, and are better equipped to navigate complex situations in everyday contexts. As a result, it contributes not only to improved academic outcomes but also to the development of practical decision-making skills (Sobri et al., 2021; Rahmawati, 2013; Ito & Takeuchi, 2021). Ilham and Hardiyanti (2020) demonstrate that critical thinking can be effectively nurtured when aligned with well-planned teaching strategies, particularly those grounded in case-based methods. Meanwhile, Khoirunnisa and Sabekti (2020) observed limited critical thinking skills among students in Tanjung Pinang about chemical bonding, indicating a clear need for learning models that emphasize higher-order thinking skills (HOTS). More recently, Hodijah et al. (2022) found that applying the case method within an International Trade Engineering course significantly strengthened students' critical thinking skills, particularly in identifying problems, analyzing data, synthesizing conclusions, and effectively presenting their analyses.

This current study differentiates itself by specifically targeting the development of students' critical thinking through the design and implementation of learning centered on the case method. At the heart of this approach is the integration of authentic or simulated case scenarios into teaching practices (Asep et al., 2023). Aimed at sharpening students' analytical reasoning, problem-solving techniques, and decision-making processes. The method encourages students to evaluate issues from diverse viewpoints, fostering a multifaceted understanding and promoting skills that are directly applicable to real-world challenges. Furthermore, it supports the development of soft skills, including leadership, collaboration, and in-depth reflective thinking (Farhan et al., 2021). For the approach to yield optimal results, a robust learning design is essential to structure the learning experience effectively (Widiastuti et al., 2022). This research, therefore, centers on constructing a comprehensive learning framework built around the case method. It involves developing a detailed lesson plan and creating textbooks aligned with the case-based learning model. These tools are intended to facilitate the meaningful application of the case method in educational settings and to systematically enhance students' cognitive and critical thinking skills through engagement with practical, real-world dilemmas.

METHODS

This research employs a research and development (R&D) methodology, which is used to create specific educational products and evaluate their effectiveness (Sasmita & Mahdin, 2023). The study adopts the Rowntree development model, selected for its focus on product-oriented development (Novitasari et al., 2018). This study employs a research and development (R&D) approach to produce specialized learning tools and assess their overall effectiveness (Sasmita & Mahdin, 2023). The chosen development framework is the Rowntree model, recognized for its emphasis on output-based educational design (Novitasari et al., 2018). The Rowntree model comprises three main phases: (1) The initial planning phase, which includes mapping out learning design needs and identifying essential components such as modules and lesson plans; (2) The development phase, where prototype learning materials are constructed and refined with insights from field experts; and (3) The evaluation stage, guided by Tessmer's formative assessment structure. Tessmer's model consists of several steps, including individual self-reviews, expert assessments (two validators), limited user testing with three students, small-scale trials with six participants, and a broader field trial involving 30 history education students at the Faculty of Teacher Training and Education, Universitas Sriwijaya.

The research setting is the History Education study program within the Department of Social Sciences. Participants were students enrolled in the Student Development course. Sampling across evaluation stages involved three students for individual trials (selected based on varied academic performance levels), six for small-group assessments, and 30 for the final implementation. Data collection included expert validation checklists, student feedback questionnaires, and tests to determine impacts on critical thinking. Primary data were sourced from lecturer interviews and classroom observations, while secondary data were obtained from module validation (including content, language, presentation, and contextual relevance) and student performance assessments.

Data collection strategies included structured walkthroughs with expert panels to review content accuracy and contextual alignment, as well as feedback forms distributed post-implementation and standardized tests (pre- and post-) to measure learning effectiveness. The critical thinking assessments consisted of 20 multiple-choice items, which were validated for content quality and examined for statistical reliability and validity using Pearson's r and Cronbach's alpha, analyzed via SPSS version 26. Overall results from expert appraisals and student responses were interpreted using a five-level classification system to determine both the practicality and validity of the developed learning product.

The data collection techniques used in this study include walkthroughs, which involve expert evaluations to validate the product's development; questionnaires, which gather student feedback and responses following product trials; and tests, which are administered to evaluate the product's effectiveness in enhancing students' critical thinking skills. The findings obtained from expert validation and student questionnaires—designed to measure both the validity and practicality of the developed product—were categorized into five levels as presented in Table 1.

Table 1. Category of Validity and Practicality of Learning Design Products

Average Score	Category
>4.2 to 5.0	Very Valid/Very Practical
>3.4 to 4.2	Valid/ Practical
>2.6 to 3.4	Valid Enough/Fairly Practical
>1.8 to 2.6	Invalid/Impractical
1.0 to 1.8	Very Invalid / Very Impractical

To assess the effectiveness of the Case-based Student Development Textbook in improving students' critical thinking skills, the N-Gain value is calculated using the following formula and classified as in Table 2 (Hunaepi et al., 2020).

RESULT AND DISCUSSION

This research led to the creation of learning tools—specifically, lesson plans and textbooks—designed around the case method, which were verified to be valid, applicable, and effective for use in university-level Student Development courses. The study employed the Rowntree development framework, comprising three principal stages: needs analysis, learning design and material development, followed by implementation and systematic evaluation, including revision phases to refine the products. Results indicated that incorporating case-based strategies into the learning process contributed substantially to the improvement of students' critical reasoning and problem-solving skills. Additionally, this pedagogical model fosters a more profound level of cognitive engagement by prompting students to tackle challenging, context-rich situations. As a result, it enhances not only their analytical skills but also the overall depth and relevance of their educational experience.

The analysis phase commenced with a reflective process aimed at identifying existing challenges and learning needs. This was carried out through interviews and classroom observations involving both students and lecturers enrolled in the Student Development course. Interviews with lecturers focused on evaluating whether the current learning design was grounded in a structured pedagogical framework, whether it effectively supported the development of students' critical thinking skills, and how the existing learning resources contributed to the overall quality of learning. Findings from the interviews and observations involving two lecturers of the Student Development course indicated that while both had developed a semester lesson plan, the actual classroom practices described in these plans did not adequately foster students' critical thinking. The learning sessions were predominantly lecture-based, with lecturers delivering the core content and limited student engagement. Although assignments were included, they lacked depth and failed to stimulate higher-order thinking. Specifically, the tasks did not involve case studies or authentic educational issues—particularly those relevant to student development—that could challenge students to engage in critical analysis, reasoning, and argumentation. In addition, the textbooks used as primary learning resources did not incorporate problem-based or case-based content, thus offering minimal support for the cultivation of critical thinking during learning activities.

A questionnaire administered to 20 students who had completed the Student Development course in the previous semester revealed the following responses: eight students rated the lectures as average, another eight found them uninteresting, two considered them interesting, and two stated they were not engaging. Students who perceived the course as unengaging reported that the content was overly theoretical and lacked opportunities for analytical exploration. The learning approach relied heavily on lectures and unfocused discussions, offering limited intellectual challenge. These findings, alongside interview results from course lecturers, highlight a clear need for a redesigned learning model that actively cultivates critical thinking skills. There is also a strong demand for textbooks that go beyond delivering theoretical content to promote deeper

cognitive engagement and analytical reasoning.Furthermore, 15 out of 20 students indicated that they did not have access to a course handbook. Most relied solely on PowerPoint slides provided by the lecturer as their primary learning material. Only three students borrowed textbooks, while two reported purchasing their own. Notably, 18 students expressed the need for a dedicated and engaging handbook for the Student Development course—one that presents the material in a more appealing format and integrates research-oriented content to support the development of critical analysis skills.

In the lesson plan design phase, the course begins by determining the necessary content. The development process is guided by the graduate, course, and sub-course learning outcomes, as outlined in the University Curriculum Guidebook. This approach also took into account the specific needs of both students and lecturers. A content analysis was performed by reviewing syllabi from various universities that offer Student Development courses. This analysis aimed to ensure that the developed content is both relevant and aligned with established educational standards, while also addressing the unique requirements of the target audience. By examining existing syllabi, the research sought to identify effective practices and content structures that could enhance the learning experience for students. Based on this analysis, the material for the Student Development course was outlined, covering topics such as student development and individual differences, concepts of developmental psychology, principles and laws of development and their educational implications, physical, cognitive, social, and emotional development of students, interaction patterns with the environment, developmental tempo, rhythm, and aging factors, the influence of technological advancements and innovative learning on student development, social aspects of student development, various aspects of student development, moral and religious development of adolescents, personality development of students in social contexts and its educational implications, development of adolescent independence and career, and its educational impact, as well as the implications of the freedom of learning on student learning development and motivation and its educational implications.

These topics were identified to create a comprehensive structure for the Student Development course, ensuring it addresses key developmental areas relevant to students' growth and learning in educational settings. During the design phase of this textbook, the framework is divided into several key sections: 1) textbook identity, section encompasses the book title, table of contents, list of tables, and list of figures; 2) addresses the learning outcomes, indicators of learning achievement, and learnings for learning; 3) core content includes the subject matter along with detailed descriptions of the materials; 4) closing, section features summaries, formative assessments, and a bibliography, lastly, the; 5) case method, section provides study guides, exposure to cases, and case analysis.

The finalized lesson plan was tailored specifically for the Student Development course, with a strong emphasis on the case method. Throughout its development, any identified weaknesses in the textbook and learning materials were carefully assessed and revised to improve their quality and effectiveness. Before being implemented in actual classroom settings, the materials underwent a comprehensive evaluation process guided by the Tessmer formative evaluation model, which includes several sequential stages: self-evaluation, expert review, one-on-one evaluation, small-group evaluation, and field testing. During the self-evaluation phase, the research team conducted an internal assessment of the case-based lesson plan. This evaluation focused on key components, including the structure and preparation of the lesson, the integration of the case method, the clarity and appropriateness of language, and the allocation of time for each session. Based on this internal review, several improvements were made. These included enhancing the authenticity of the learning experiences in the lesson plan to reflect actual classroom activities better, ensuring that the case studies were closely aligned with the thematic focus of each topic, improving the use of formal and accurate Indonesian language in accordance with standardized spelling conventions, and revising the time allocations to ensure sufficient coverage of all learning materials.

Furthermore, the format of the learning indicators was revised from paragraph form to a numbered list to enhance readability and clarity. Additionally, sources for the case studies, which had previously been omitted, were added at the bottom of the case presentation sections, properly citing relevant articles and academic journals. Following the self-evaluation, the revised lesson plan was submitted for validation during the expert review stage. This review was conducted by experienced lecturers specializing in learning design and development. The experts assessed several key aspects to ensure the quality and pedagogical alignment of the lesson plan. One primary focus was the integration and clarity of the case method within the learning framework. Reviewers also recommended refinements to the structure of the semester lesson plan so that it adhered more closely to the university's official formatting standards. Moreover, they highlighted the necessity of using precise, measurable operational verbs when formulating both core competencies and specific competencies. They also evaluated the general course description for its accuracy in representing the course content and advised expanding the reference list to provide students with more comprehensive academic sources. These expert insights informed further revisions, resulting in the development of Prototype 1 of the learning materials. This iterative process highlights the crucial role of expert validation in refining the clarity, structure, and educational effectiveness of learning resources, thereby ensuring their alignment with academic and institutional standards.

The expert validation of the case-based semester lesson plan was conducted based on five core assessment dimensions. The first, General Preparation, comprises five indicators that assess the overall structure, coherence, and readiness of the lesson plan. The second, Main Content, includes twelve indicators that evaluate the relevance, completeness, and learning quality of the content. The third dimension, Case Method Integration, focuses on how effectively the case method is embedded within the plan, consisting of nine indicators that measure alignment with learning objectives and the suitability of the case-based tasks. The fourth, Language, consists of four indicators that examine the clarity, accuracy, and appropriateness of the language used throughout the semester lesson plan. Lastly, Time Allocation and Management is assessed through three indicators, evaluating how effectively learning time is distributed across learning activities. The outcomes of the expert evaluations are typically presented in tabular form, offering a detailed breakdown of scores and feedback for each assessment area. This structured review process plays a crucial role in ensuring that the lesson plan adheres to academic standards and pedagogical principles, while effectively promoting student engagement and critical thinking through the use of the case method. The summary of the validator assessments for the developed semester lesson plan is provided in Table 3.

Table 3. Expert Validation of Case-Based Lesson Plan

Assessment Aspects	Total Score	Average Score	Category
General Preparation	24	4.8 km	Highly Valid
Main Content	55	4.58	Highly Valid
Case Method Integration	42	4.67 km	Highly Valid
Language	18	4.5	Highly Valid
Time Allocation and Management	13	4.33	Highly Valid
Average		4.57	Highly Valid

As illustrated in Table 3, the average validation scores provided by expert reviewers for each component of the case-based semester lesson plan are as follows: the General Preparation aspect received a score of 4.8, the Main Content scored 4.58, Case Method Integration earned 4.67, the Language aspect received 4.4, and Time Allocation and Management scored 4.33. With an overall average of 4.57. These results indicate that the developed semester lesson plan is classified as "Very Valid", reflecting its strong alignment with learning standards and its potential for effective implementation in the classroom.

In addition to evaluating the lesson plan, a self-evaluation was also conducted during the initial design phase, which was intended to evolve into a teaching material product—specifically, a case-based student development textbook. During this self-assessment, the research team evaluated the textbook's feasibility in terms of content, presentation, and language. Several improvements were made as a result of this review. Among these enhancements was the transition from a black-and-white format to a full-color layout, which improved visual appeal. The textbook's cover image was also updated: instead of depicting students during a flag ceremony, it now displays images of elementary, junior high, and high school students standing in front of a school building, making it more contextually engaging. In terms of design, the textbook content should address current and relevant challenges in the education sector, ensuring that the case studies presented reflect realistic and thought-provoking dilemmas that require decision-making. To maintain academic motivation, they emphasized that each case resolution must follow the systematic stages of the case approach and align with the rubric designed for case-based learning, while also ensuring consistency and coherence across the learning materials. From a linguistic and editorial standpoint, the quality of the writing was improved by refining the editorial style and ensuring that all source materials are correctly cited.

These insights led to further improvements in the textbook, culminating in the development of Prototype 1. Subject and design experts then evaluated the case-based student development textbook. Their assessment was based on three key areas: content, presentation, and language. Content feasibility involved examining the relevance of the material to the expected learning outcomes and indicators, the accuracy and appropriateness of the content, the presence of adequate supporting material, and the timeliness of the information. The presentation aspect focused on how well the textbook delivered its content through effective structuring, visual and learning support, clarity of learning flow, and overall completeness. Language was assessed in terms of logical organization, clarity, communicative and interactive style, suitability to students' developmental levels, conceptual coherence, and the proper use of terminology and symbols. Each of these aspects was meticulously reviewed to ensure the textbook meets the standards required for effective learning and promotes critical engagement through the case method. The results of validation are presented in Tables 4 and 5.

Table 4. Subject Expert Validation of the Case-Based Student Development Textbook

Assessment Aspects	Expert Validator	Total Score	Validation Score	Average Validation Score	Category
Content	1	85	4.25	4.3	Highly
	2	87	4.35		Valid
Presentation	1	40	3.63	3.72	Valid
	2	42	3.81		
Language	1	48	4.36	4.08	Valid
	2	42	3.81		
Average				4.03	Valid

Table 5. Design Expert Validation of the Case-Based Student Development Textbook

Assessment Aspects	Expert Validator	Total Score	Validation Score	Average Validation Score	Category
Content	1	81	4.5	4.52	Highly Valid
	2	82	4.55		
Presentation	1	43	3.90	3.95	Valid
	2	44	4.0		
Language	1	45	3.46	3,49	Valid
	2	46	3.53		
Average				3.98	Valid

The validation of content yielded an average score of 4.3, indicating that the textbook is highly suitable and relevant for learning purposes. In terms of presentation, the average score was 3.72, suggesting that the content organization and presentation methods are sufficiently valid to support student learning. The language received a score of 4.08, indicating that while the language used is generally acceptable, further improvements in clarity and linguistic precision are needed. Taken together, the overall average score across all three assessment dimensions was 4.03, indicating that the textbook is considered valid and suitable for use in educational settings. This score reflects strong approval of the textbook's quality and its potential to support the development of students' critical thinking through the application of the case method.

Additional validation was conducted by design experts and practitioner lecturers on the case-based student development textbook, which focused on the exact three core dimensions. According to this evaluation, the average score given by both design experts and practitioner lecturers for content was 4.52, indicating that the textbook is highly suitable in terms of content quality. For presentation, the average score was 3.95, indicating a well-structured and effective presentation. In terms of language, the validators gave an average score of 3.49, indicating that the language used is generally appropriate, although with some areas for improvement. Overall, the textbook received an average score of 3.98 across all evaluation categories, confirming its validity and suitability for implementation in learning environments.

As a result of this expert review stage, Prototype 1 of the textbook was produced and then subjected to one-to-one evaluation. During this phase, both the lesson plan and textbook were tested with three students representing varying levels of academic ability—high, medium, and low. The primary objective of this trial was to identify potential challenges that might emerge during the learning process. After using the case-based semester lesson plan and textbook, each student completed a feedback questionnaire to share their insights. The student with high academic ability reported that the student development course became significantly more engaging, highlighting the effective integration between textbook content and the case analysis tasks at the end of each section. These tasks, according to the student, fostered deeper critical reflection on educational issues using the theoretical concepts introduced in the textbook. The student representing medium ability noted that learning with the case-based textbook was enjoyable and visually appealing due to its vibrant design. They appreciated how the case analysis encouraged critical thinking, although they mentioned that the length of the case descriptions made them somewhat time-consuming to read. The student with lower academic ability reported that the course felt more engaging when taught using the new textbook, especially because the case analyses were based on real-life scenarios, making the material more relatable and accessible.

During the one-to-one evaluation phase, data were collected on students' responses to the developed textbook. In addition to the use of questionnaires, unstructured interviews were conducted to gain deeper insights. The findings from these interviews indicated that the textbook was considered highly practical for use in the Student Development course. Following the revisions made during the expert review and one-to-one evaluation stages, the second prototype of the textbook was produced and subsequently subjected to a small group evaluation. In this phase, Prototype 2 was tested on a group of nine students with varying academic skills, none of whom were part of the main research sample. These students were asked to complete practice questions and analyze case studies drawn from the textbook. They relied on the case-based materials provided

in the textbook to complete the tasks. The results demonstrated that all participants were able to solve the problems and critically analyze the case studies successfully. This success indicated that the developed textbook is not only practical but also effective in supporting student learning. After the small-group trial of Prototype 2, students were asked to complete a questionnaire and provide feedback, including suggestions for improving the textbook. This feedback aimed to assess the practicality of the textbook and to identify areas for refinement prior to field testing. A summary of the students' suggestions and comments from the small group evaluation is presented in Table 6.

Table 6. Comments and Revision from Small-Group Trial Results

Student Comments		Revision
Positive	**Negative**	
It stimulates students to think more actively, creatively, and innovatively. By incorporating legal cases and actual international relations tasks into the learning process, students find the experience more engaging. The teaching and learning process trains students to think critically and systematically, as it begins with exposure to material that students can use as a reference for analyzing cases of Student Development.	The cases contained in Learning Activity III, "Law and Principles of Development," are not in accordance with the exposure of the material. Some of the cases presented are not listed as sources (e.g., Learning Activities VII, XI, and XIV) The images in the textbook are not clear, and some of them are black and white. The case in Learning Activity VII, "Actual Issues and Problems," can no longer be considered an actual issue, as it does not align with the title of the learning activity.	Cases presented, Revamped Source of the article, Completed case The black and white images in the textbook are replaced with a colored picture to make it clearer The case was replaced with the case of "Lack of Educational Infrastructure Recommendations in the 3 T area."

The summary of the questionnaire data, which comprised 15 items rated on a scale from 1 (lowest) to 5 (highest), revealed that the average total score from nine students during the small group evaluation phase was 57. This score falls between the maximum possible score of 75 and the minimum of 15. When converted, the average rating per item was 3.8, categorizing the textbook as "practical." These results indicate that the case-based student development textbook is regarded as practically applicable and suitable for classroom use. A detailed breakdown of the students' responses concerning the textbook's practicality is provided in Table 7.

Table 7. Practicality Scores of the Case-Based Student Development Textbook

Respondents	Total Score	Average Practicality Score	Category
DH	67	4.46	Very Practical
AE	60	4.0	Practical
NRF	58	3.86	Practical
ZJ	50	3.33	Fairly Practical
VD	52	3.46	Practical
MAA	50	3.33	Fairly Practical
SA	57	3.8	Practical
FA	54	3.6	Practical
RA	65	4.33	Practical
	57	3.8	Practical

Following the feedback and assessments obtained during the one-to-one evaluation phase, Prototype 2 was revised and refined, resulting in the development of Prototype 3, which is prepared for implementation in the field testing phase. Following the development of Prototype 3—a case-method-oriented Student Development textbook deemed valid and practical—the product was implemented with the research participants. This implementation took place during the Student Development course of the History Education study program at the Faculty of Teacher Training and Education, Universitas Sriwijaya. The learning process began with the lecturer delivering a concise overview of the key material, which was already embedded in the textbook. Subsequently, students were invited to engage with case problems related to Student Development presented in the textbook and to seek solutions through structured case-based learning activities. The learning process adhered to the case framework as outlined by Wasserman (1994) and was fully integrated into the textbook. The procedural steps include: 1) Case Narrative, introduced with the directive "please read and understand the case presented above"; 2) Analytical Questions, following the narrative, framed as "analyze the case using the Student Development concepts you have studied"; 3) Collaborative Work, initiated with the learning "please work in groups to analyze the case"; 4) Group Discussion, guided by "please discuss in a group to analyze the

case and formulate a solution"; and 5) Follow-Up Activity, where each group was instructed to "present the results of your discussion in the class forum for feedback from other groups." The following are examples of cases raised in textbooks:

CHAPTER IV: Physical, Cognitive, Social, and Emotional Development of Students
Learning Outcome 5.2: Upon completing and engaging in the discussions of Learning Activity IV, students will be able to understand and critically analyze case studies concerning students' physical, cognitive, social, and emotional development.

Case Narrative

CASE: SPEECH DELAY DISORDER IN CHILDREN

Pediatrician Dian Pratamastuti from Siloam Hospitals Surabaya reported that the number of children experiencing speech delays has continued to rise annually, particularly during the Covid-19 pandemic. Speech delay, also known as delayed speech development, refers to a disruption in a child's developmental milestones. She explained that during the pandemic, children were confined to their homes, which limited their opportunities for outdoor play. As a result, many turned to television and digital devices for entertainment, reducing meaningful interaction with their surroundings. This lack of stimulation during the crucial phase of language acquisition is believed to have contributed significantly to delays in speech development.

Meanwhile, Waspada, the Chairperson of the Indonesian Speech Therapy Association (IKATWI), emphasized that speech delays can harm a child's cognitive development and social behavior. Currently, it is estimated that 20% of children are affected by speech delays. Out of a population of 5 million children, this means that 1 million may be experiencing such issues. This situation is deeply concerning, as children are considered vital assets to the nation's future. He stressed the importance of recognizing this issue as a national priority and urged all relevant stakeholders to collaborate in finding solutions. A coordinated, collective effort is believed to be key in addressing and mitigating this growing problem.

The overall test results of the critical thinking skill test, after using the case-based textbooks, are presented in Table 8. Additionally, the comparison is illustrated in Figure 1.

Table 8. Students' Critical Thinking Skills Scores After Using the Case-Based Student Development Textbook

		Case-Based Student Development Textbook Score	
		Pre-test	**Post-test**
N		69	69
Highest Score		72	100
Lowest Score		50	78
Score of Each Indicator	Problem Identification	72	92
	Problem Definition	60	90
	Problem Exploration	62	90
	Solution Evaluation	60	92
	Solution Integration	54	95
Mean		61.6	91.8
Value (g)		0, 786	

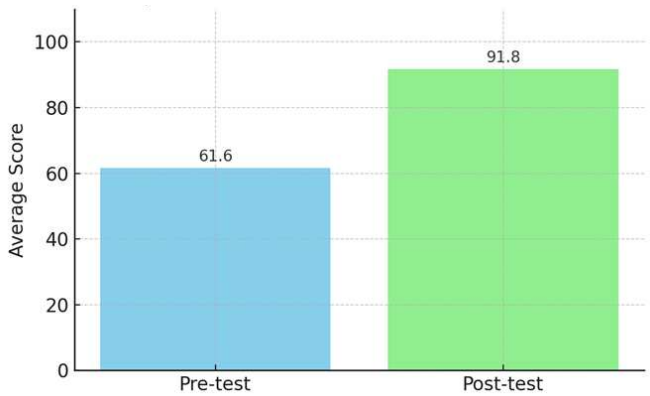

Figure 1. Comparison of Pre-test and Post-test Scores

Table 8 and Diagram 1 reveal a marked improvement in students' critical thinking skills following the use of case-based textbooks. Initially, the average pre-test score was 61.6, with individual critical thinking indicators distributed as follows: problem identification (72), problem definition (60), problem exploration (62), solution evaluation (60), and solution integration (54). Following the implementation of the case-based learning approach, the average post-test score increased significantly to 91.8. Post-test results for each critical thinking component showed considerable enhancement, with scores of 92 for problem identification, 90 for both problem definition and exploration, 92 for solution evaluation, and 95 for solution integration. This overall improvement across all dimensions indicates that case-based learning is highly effective in developing students' critical thinking skills.

Furthermore, the calculated N-gain score was 0.786, which falls into the high category. This suggests that the integration and application of case-based learning textbooks had a substantial positive influence on the students' ability to think critically. These findings highlight the effectiveness of this learning approach in fostering analytical reasoning and problem-solving skills. Additional insights, including the results of the normality test conducted on pre-test and post-test scores, are presented in Table 9.

Table 9. Normality Test of Students' Critical Thinking Skills After Using the Case-Based Student Development Textbook

	Kolmogorof-Smirnov			**Shapiro–Wilk**		
	Statistics	df	Sig	Statistics	Df	Sig
Pre-test	0.153	69	0.019	0.934	69	0.023
Post-test	0.082	69	0.200	0.959	69	0.159

The normality test for the pre-test scores of students' critical thinking skills, conducted using the Shapiro-Wilk test, revealed a significance level of $p < 0.05$, indicating that the data were not normally distributed. Conversely, the post-test scores showed a significance level of $p > 0.05$, suggesting that these data followed a normal distribution. Furthermore, the paired t-test comparing the mean critical thinking scores before and after using the case-based textbook demonstrated a statistically significant difference. The calculated t-value of 2.35 exceeded the critical value of 1.990, thereby confirming that the textbook had a significant impact on students' critical thinking skills.

To assess the significance of the difference in outcomes, a paired t-test was conducted. The analysis yielded a t-value of 2.35, which exceeds the critical value of 1.990 at the 5% significance level, indicating a statistically significant difference between pre-test and post-test scores. Additionally, the effectiveness of the learning intervention was evaluated using Cohen's d to measure the effect size. The result showed a Cohen's d value of 5.49, which is categorized as a considerable effect size. This suggests that integrating case-based textbooks had a substantial positive impact on enhancing students' critical thinking skills. These findings reinforce the validity and effectiveness of the case-based learning materials, including both the lesson plan (SEMESTER LESSON PLAN) and the textbook. The use of case-based learning not only enhances student engagement and analytical skills but also significantly contributes to achieving meaningful learning outcomes. Overall, the data support the broader implementation of this approach in similar academic settings as a means of fostering advanced thinking skills in students.

Based on the data analysis, incorporating lesson plans alongside case-method-oriented textbooks within the Student Development course effectively improves students' critical thinking skills. Several key factors contribute to this positive outcome. The study's findings demonstrate that using case-method-based lesson plans and textbooks significantly enhances students' critical thinking in this course. Beyond establishing the approach's effectiveness, the analysis also provides deeper insights into the specific conditions and mechanisms that drive these improvements. Firstly, while earlier research (Rakhmawati & Liyus, 2023; Pasaribu et al., 2022) has validated the general effectiveness of case-method learning for fostering higher-order thinking skills, this study offers contextualized evidence by applying the approach specifically to student development in higher education. Unlike studies that focus solely on broad pedagogical frameworks (Sianipar et al., 2023), this research directly ties case-based strategies to the developmental challenges students encounter, presenting a more practical application.

However, some limitations should be acknowledged. The method's success depends heavily on the quality of the case materials and the instructor's facilitation skills—factors that vary and may lead to inconsistent learning outcomes. Additionally, classroom variables such as students' baseline critical thinking skills and motivation were not fully controlled and could moderate the results. Future studies should address these potential confounding factors to more precisely determine the method's effectiveness. Although this study references numerous previous works (Rahmadi et al., 2022; Roza et al., 2022; Fauzi et al., 2023), many citations are descriptive rather than critically engaged with the current findings. For example, Roza et al. (2022) emphasize the enrichment of case analysis through the application of scientific concepts. This research extends that understanding by highlighting the necessity of explicitly integrating these concepts within learning design

to enhance their applicability. Similarly, whereas Natalia et al. (2022) broadly acknowledge the benefits of textbook integration, our results stress the importance of continuously refining textbook content based on direct student feedback during case engagement.

The case-based lesson plans and textbooks developed in this study enhance teaching and learning effectiveness by promoting active, context-based learning through the analysis of real cases. This approach provides students with a more contextualized learning experience, enabling them to better identify, analyze, and address developmental challenges in educational settings. The textbook presents case studies that reflect the evolving nature of student development across diverse educational environments, making theoretical content more relevant and applicable. Furthermore, this research contributes to the development of innovative learning strategies by encouraging educators to adopt more interactive, experiential methods. These materials serve as valuable references for developing adaptive curricula that incorporate modern pedagogical approaches, especially in Student Development courses. Additionally, the products provide a foundation for future research examining the efficacy of the case method across various scientific disciplines, particularly in education and student development psychology. In conclusion, while this study confirms the effectiveness of case-method-based learning tools, it also reveals that their success depends on specific contextual factors, facilitator skill, and student dynamics. These insights enrich pedagogical literature and offer guidance for enhancing learning design through ongoing critical reflection and iterative refinement.

CONCLUSION

From the analysis of the research data, it can be inferred that the learning materials—comprising the lesson plan and a case-based textbook designed for the Student Development Course—were validated by both pedagogical and subject-matter experts. These materials, once implemented in a learning environment structured around case-based learning principles, led to a notable improvement in students' higher-order thinking, particularly in critical reasoning. Additionally, the development of interactive digital modules offers valuable contributions to educators, including teachers and university faculty, by facilitating a transition from conventional teaching strategies to more dynamic, tech-integrated methods. These modules aim to enhance classroom learning and align it with the goals of digital transformation in education. The research successfully produced applicable, tested, and impactful teaching tools that can be adapted across various educational levels. By incorporating case-based approaches and digital learning resources, this innovation is expected to foster students' digital competence and contribute to shaping a future-ready generation. Future research is encouraged to explore other technology-enriched designs and models that stimulate higher-order thinking, in order to keep pace with the evolving educational demands of the digital age.

ACKNOWLEDGEMENT

The authors gratefully acknowledge the financial support provided by Universitas Sriwijaya for the dissemination of this research. This support was made possible through the 2024 Fiscal Year DIPA Budget of Universitas Sriwijaya's Public Service Agency, as outlined in Budget Document Number SP DIPA 023.17.2.677515/2024 dated November 24, 2023, and in accordance with Chancellor's Decree No. 0013/UN9/LP2M.PT/2024 issued on May 20, 2024.

REFERENCES

Afzal, A., Kamran, F., & Naseem, A. (2023). The Role of Teachers in Fostering Critical Thinking Skills at the University Level. *Qlantic Journal of Social Sciences and Humanities, 4*(3), 202–214.

Ahmad, U. H. (2020). *Penerapan Model Problem Based Learning (PBL) untuk Meningkatkan Kemampuan Pemecahan Masalah Siswa Kelas IV SD*. Universitas Muhammadiyah Jakarta.

Alfiandra, A., Yusuf, S., & Barlian, I. (2022). Improving Students' Critical Thinking Skills Through Case Based Learning Oriented Textbook. *Jurnal Penelitian Dan Pengembangan Pendidikan, 6*(3), 440–449.

Arum, D. R., & Minangwati, S. (2014). Penerapan Metode Pembelajaran Studi Kasus Berbantuan Modul untuk Meningkatkan Keterampilan Berpikir Kritis. *Chemistry in Education, 3*(2), 174–184.

Arviansyah, M. R., & Safitri, S. (2022). Pengaruh Media Pembelajaran Terhadap Proses Belajar Mengajar di Masa Pandemi Covid-19. *Khazanah Pendidikan: Jurnal Ilmiah Kependidikan, 16*(2), 49–54.

Arviansyah, M. R., Safitri, S., Syarifuddin, S., & Alfiandra, A. (2024). Digitalizing History: Development of E-Module for History Learning on the Subject of Japanese Colonialism Period in Indonesia. *JINoP (Jurnal Inovasi Pembelajaran), 10*(1), 31–50.

Arviansyah, M. R., & Shagena, A. (2022). Efektivitas dan Peran dari Guru dalam Kurikulum Merdeka Belajar. *Lentera Jurnal Ilmu Kependidikan, 17*(1), 40–50.

Asep, A., Helmi, D., Ansiska, P., & Sohilait, D. (2023). Aktivitas Pembelajaran Berbasis Metode Case Method dalam Pembelajaran Geografi Mata Kuliah Antropologi. *Jurnal Ilmiah Profesi Pendidikan, 8*(1b), 515–522.

Bridgman, T., McLaughlin, C., & Cummings, S. (2018). Overcoming the Problem with Solving Business Problems: Using Theory Differently to Rejuvenate the Case Method for Turbulent Times. *Journal of Management Education*, 441–460.

Darojat, O., Sudrajat, A., Ningtyas, L. D., & Kustandi, C. (2025). Implementation of Learning Media Used by Students in Rural Areas: A Mixed-Method Study. *Journal of Innovation in Educational and Cultural Research, 6*(1), 44–51.

Eli, R. N. (2016). Analisis Kemampuan Kognitif Peserta Didik Melalui Pembelajaran Problem Base-Learning pada Materi Penjernihan Air. *Biosfer: Jurnal Biologi dan Pendidikan Biologi, 1*(1), 16–22.

Farhan, M., Satianingsih, R., & Yustitia, V. (2021). Problem Based Learning on Literacy Mathematics: Experimental Study in Elementary School. *Journal of Medives: Journal of Mathematics Education IKIP Veteran Semarang, 5*(1), 118.

Fauzi, A., Ermiana, I., Rosyidah, A. N. K., & Sobri, M. (2023). The Effectiveness of Case Method Learning in View of Students' Critical Thinking Ability. *Pedagogia: Jurnal Pendidikan, 12*(1), 15–33.

Fitri, Y., & Patriana, E. (2022). Penerapan Learning by the Case Method Terhadap Efektivitas Pembelajaran Mahasiswa Akuntansi UIN Jakarta. *Akuntabilitas, 15*(1), 1–18.

Haerullah, A., Hasan, S., Sahil, S., & Ermin, E. (2022). Pengembangan Bahan Ajar Kemampuan Dasar Mengajar Berorientasi Case Methode untuk Meningkatkan Keterampilan Abad 21 Mahasiswa. *Jurnal Ilmiah Wahana Pendidikan, 8*(18), 551–559.

Hidayati, L. (2021). Case-Based Method and Its Implementation in English for Medical Purposes. *Journal of Language, Literature, and English Teaching (JULIET), 2*(2), 1–7.

Hodijah, S., Hastuti, D., & Zevaya, F. (2022). Implementasi Model Case Method dalam Meningkatkan Inovasi Pembelajaran Mahasiswa dan Kemampuan Berpikir Kritis pada Mata Kuliah Teknik Perdagangan Internasional. *Jurnal Paradigma Ekonomika, 17*(2), 477–484.

Hunaepi, H., Firdaus, L., Samsuri, T., Susantini, E., & Raharjo, R. (2020). Efektifitas Perangkat Pembelajaran Inkuiri Terintegrasi Kearifan Lokal Terhadap Keterampilan Berpikir Kritis Mahasiswa. *Scholaria: Jurnal Pendidikan Dan Kebudayaan, 10*(3), 269–281.

Ilham, M., & Hardiyanti, W. E. (2020). Pengembangan Perangkat Pembelajaran IPS dengan Metode Saintifik untuk Meningkatkan Kemampuan Berpikir Kritis Siswa Materi Globalisasi di Sekolah Dasar. *Jurnal Ilmiah Pendidikan Dasar, 7*(1), 12–29.

Ito, H., & Takeuchi, S. (2021). Instructors' Understanding, Practices, and Issues Regarding the Use of the Case Method in Higher Education. *Journal of Further and Higher Education, 45*(2), 211–225.

Jamaludin, J., & Alanur, S. N. (2021). Pengembangan Civic Knowledge dan Literasi Informasi di Masa Pandemi Covid-19 Melalui Case Method pada Mahasiswa Pendidikan Pancasila dan Kewarganegaraan. *Jurnal Pendidikan Kewarganegaraan, 11*(1), 28.

Jumini, S., Muntaqo, R., Majid, A., & Nadrah, Y. (2025). Learning Patterns and Their Implications in the Development of Students' Religious Character. *Journal of Innovation in Educational and Cultural Research, 6*(1), 84–93.

Kharazishvili, Y., Kwilinski, A., Grishnova, O., & Dzwigol, H. (2020). Social Safety of Society for Developing Countries to Meet Sustainable Development Standards: Indicators, Level, Strategic Benchmarks (with Calculations Based on the Case Study of Ukraine). *Sustainability (Switzerland), 12*(21), 1–21.

Luh, N., Yunianti, P., Labir, I. K., Made, N., Gumala, Y., Putu, N., Parmitha, D., Tariani, N. M., Gede, D., & Raditya, N. (2025). KatakLarita as Educational Media to Increase Deaf Children's Knowledge of Sexual Safety and Security Protection. *Journal of Innovation in Educational and Cultural Research, 6*(1), 9–15.

Mentari, S., & Laily, N. (2016). Pengembangan Bahan Ajar Berbasis Kasus (Case Based) pada Mata Kuliah Aspek Hukum Ekonomi dan Bisnis. *Journal of Accounting and Business Education, 2*(1).

Mulyatiningsih, E. (2015). Pengembangan Model Pembelajaran. *Islamic Education Journal, 1*(1), 110–121.

Natalia, C. H., Batubara, K. B., & Khairina, Y. (2022). Developing Case Method Based Course Substantial in Enriching ELT for Student of English Education Study Program. *Randwick International of Education and Linguistics Science Journal, 3*(3), 568–574.

Novitasari, E., Sumarni, S., & Rahelly, Y. (2018). Pengembangan Media Maket Berbasis Kota Palembang untuk Anak. *Cakrawala Dini: Jurnal Pendidikan Anak Usia Dini, 9*(2), 75–87.

Oprasmani, E., & Alpindo, O. (2023). Pengembangan Buku Ajar Belajar dan Pembelajaran Berbasis Case Method. *Pedagogi Hayati, 6*(2), 85–93.

Pasaribu, M., Paramita, I., & Fihrin, F. (2022). Pengembangan Perangkat Pembelajaran Berbasis Case Method pada Mata Kuliah Dasar-Dasar Fisika Lanjut untuk Meningkatkan Higher Order Thinking Skill (HOTS) Mahasiswa. *Jurnal Pendidikan Fisika Tadulako Online, 10*(3), 25–31.

Pernantah, P. S., Khadijah, K., Hardian, M., Ibrahim, B., & Khasanah, M. F. (2022). Desain Pembelajaran Berbasis Case Study pada Mata Kuliah Pendidikan IPS. *Indonesian Journal of Social Science Education (IJSSE), 4*(2), 95.

Prastowo, A. Y. (2023). Pengembangan Lembar Kerja Mahasiswa Berbasis Case Method pada Matakuliah Profesi Kependidikan. *Jurnal Ilmiah Profesi Pendidikan, 8*(3), 1859–1864.

Rahmadi, M. T., Nurman, A., Yuniastuti, E., Pinem, M., Berutu, N., Maulia, T., ... & Saqina, D. (2022). Analisis Penerapan Case Method dan Team Based Project dalam Kebijakan Jurusan di Universitas Negeri Medan. *Publikauma: Jurnal Administrasi Publik Universitas Medan Area, 10*(2), 137–143.

Rahmawati, B. F. (2013). Meningkatkan Motivasi Belajar dan Kemampuan Berpikir Kritis Mahasiswa Melalui Model Pembelajaran Berbasis Masalah. *Educatio, 8*(2), 17–27.

Rahmawati, R., & Indriayu, M. (2024). Tren Penelitian Penerapan Case Study untuk Meningkatkan Kemampuan Berpikir Kritis Peserta Didik pada Pembelajaran IPS: Analisis Bibliometrik. *Social, Humanities, and Educational Studies (SHEs), 3*(7), 1–23.

Rakhmawati, D., & Liyus, H. (2023). Desain Pembelajaran Hukum Berbasis Case Method pada Mata Kuliah P3TP. *PAMPAS: Journal of Criminal Law, 4*(3), 387–391.

Rasyid, F., Aini, N., & Varghesse, K. (2023). Questioning Strategy That Works to Foster Critical Thinking Skills: A Study in Islamic University. *JEELS (Journal of English Education and Linguistics Studies), 10*(2), 335–355.

Roza, S., Erida, E., & Siregar, A. P. (2022). Implementasi Pembelajaran Case Method dalam Meningkatkan Keterampilan Berpikir Kritis pada Mata Kuliah Pemasaran Jasa. *Jurnal Ilmiah Universitas Batanghari Jambi, 22*(3), 1795.

Sasmita, L., & Mahdin, M. (2023). Pengembangan Lembar Kerja Peserta Didik pada Mata Pelajaran Ilmu Pengetahuan Sosial Terpadu Sekolah Dasar. *Jurnal Pendidikan Dan Media Pembelajaran, 2*(3), 61–66.

Servant-Miklos, V. F. C. (2019). The Harvard Connection: How the Case Method Spawned Problem-Based Learning at McMaster University. *Health Professions Education, 5*(3), 163–171.

Sianipar, T., Flora, E., Nainggolan, A. Z., & Yunita, S. (2023). Metode Case Method dalam Membangun Critical Thinking Siswa pada Mata Pelajaran PPKN. *Innovative: Journal Of Social Science Research, 3*(5), 6928–6937.

Sobri, M., Muid, A., & Daud, S. M. (2021). Penggunaan Model Pembelajaran Case Method dalam Mengatasi Demotivasi Belajar pada Mata Kuliah Muhadatsah Lil Mubtadiin Prodi Pendidikan Bahasa Arab Universitas Jambi. *AD-DHUHA: Jurnal Pendidikan Bahasa Arab Dan Budaya Islam, 2*(2).

Widiastuti, F., Amin, S., & Hasbullah, H. (2022). Efektivitas Metode Pembelajaran Case Method dalam Upaya Peningkatan Partisipasi dan Hasil Belajar Mahasiswa pada Mata Kuliah Manajemen Perubahan. *Edumaspul: Jurnal Pendidikan, 6*(1), 728–731.

Wira, A., Syahri, B., Adri, J., & Putra, R. P. (2025). Impact of the Team-Based Project Learning Model on Student Achievement in Manufacturing Engineering Drawing Courses. *Jurnal Vokasi Mekanika, 7*(1), 130–140.