Investigating Critical Thinking Skills in Argumentative Essays of Indonesian University Students

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Abstract. The growing emphasis on 21st-century skills in Indonesian education underscores the importance of fostering critical thinking among university students. While curriculum reforms have been implemented, concerns remain about the effectiveness of these changes in developing students' critical thinking abilities, particularly in the context of argumentative writing. This study investigated the level of critical thinking demonstrated by 33 fourth-semester English Education students at UIN Raden Intan Lampung in their argumentative essays. Employing a descriptive-quantitative research design with content analysis, the study utilized the Marguerite and Ennis (1993) rubric to assess students' performance across six aspects of critical thinking: focus, supporting reasons, reasoning, organization, conventions, and integration. Findings revealed that students generally performed well in focus, supporting reasons, organization, and conventions, exhibiting well-developed proficiency in these areas. However, reasoning emerged as a significant area of weakness, with a substantial portion of students demonstrating only developing-level skills. The overall average score indicated a well-developed level of critical thinking, yet the persistent challenges in reasoning highlight the need for targeted pedagogical interventions that specifically address this crucial aspect. This study provides valuable insights for educators seeking to enhance critical thinking instruction and assessment within Indonesian universities, emphasizing the importance of fostering not only technical writing skills but also the deeper cognitive processes that underpin genuine critical inquiry. The results contribute to the ongoing evaluation of curricular reforms and inform future efforts to equip Indonesian students with the critical thinking skills necessary for success in the 21st century.

Keywords: argumentative essay, critical thinking, HOTS

Received: January 21, 2025. Accepted: April 25, 2025.
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INTRODUCTION

The global educational landscape is undergoing a significant transformation, driven by the imperative to equip students with 21st-century skills essential for navigating an increasingly complex and interconnected world. These skills, encompassing critical thinking, creativity, collaboration, communication, and ICT literacy (Afandi et al., 2019; Mahmud & Wong, 2022), are recognized as crucial for future employability, global citizenship, and addressing the multifaceted challenges of sustainable development (Bell, 2016; Mahmud & Wong, 2022). While many nations are actively reforming their educational systems to integrate these competencies (Afandi et al., 2019), concerns persist about the effectiveness of these efforts, particularly in ensuring equitable access to quality education and achieving desired learning outcomes across diverse student populations (Tindowen et al., 2017).

Indonesia, in response to this global imperative, has embarked on significant educational reforms aimed at cultivating 21st-century skills within its national curriculum. Frameworks have been established emphasizing critical thinking, creativity, and other essential competencies (Afandi et al., 2019; González-Pérez & Ramírez-Montoya, 2022). The introduction of a new school curriculum in 2013 sought to address sustainability issues (Parker, 2017) and the growing emphasis on STEM education reflects a commitment to fostering scientific literacy and innovation (Nugroho et al., 2019). Despite these initiatives, challenges remain in translating policy into practice and ensuring the effective development of 21st-century skills, particularly for teachers who require comprehensive support and professional development to implement new pedagogical approaches (González-Pérez & Ramírez-Montoya, 2022).

Within this context, writing proficiency, particularly in English, emerges as a critical skill for Indonesian students. As the international language of science, technology, and commerce, English proficiency is increasingly vital for academic success, access to global opportunities, and participation in a competitive workforce (Asrifan, 2021). However, studies reveal a persistent gap in English writing skills among both students and teachers in Indonesia (Masduqi, 2018; Renandya et al., 2018). This deficiency underscores the urgent need for effective teaching methodologies and interventions that enhance writing proficiency, particularly in higher education where students are expected to engage in sophisticated academic discourse (Lisnawati, 2018). The development of robust writing skills is not merely a matter of linguistic competence but also necessitates the cultivation of higher-order thinking skills (HOTS), including critical thinking, which are essential for constructing well-reasoned arguments, evaluating information, and engaging in complex problem-solving (Barak & Dori, 2009; Chinedu et al., 2015).

Critical thinking, defined as the ability to analyze, interpret, evaluate, infer, and self-regulate one's thinking processes (Eunice et al., 2024; Pettersson, 2020; Raj et al., 2022), is widely recognized as a cornerstone of higher education and a fundamental skill for effective argumentative writing (Lu & Swatevacharkul, 2020). Argumentative writing, which requires students to defend a position, present evidence, and engage in logical reasoning, provides a fertile ground for both assessing and fostering critical thinking abilities (Ma & Li, 2022; Sato, 2022). Recent research highlights a strong correlation between critical thinking dispositions and performance in English argumentative writing, with cognitive maturity, analytical skills, and a commitment to truth-seeking emerging as key predictors of success (Hu & Saleem, 2023). However, the relationship between argumentative writing and critical thinking is not without its complexities. Some scholars argue that traditional argumentative writing genres may inadvertently reinforce cognitive biases and hinder open-mindedness, potentially promoting dogmatism rather than genuine critical inquiry (Southworth, 2020). This tension underscores the need for pedagogical approaches that explicitly integrate critical thinking instruction into argumentative writing courses, fostering not only the technical skills of argumentation but also the intellectual dispositions that underpin critical engagement with ideas (Lu & Swatevacharkul, 2020).

Despite the recognized importance of critical thinking in the Indonesian curriculum, challenges persist in its effective implementation. Studies have revealed limitations in teacher training, resource availability, and the incorporation of critical thinking tasks into instructional materials, particularly in subjects like mathematics and the Indonesian language (Solihati & Hikmat, 2018; Trisnani et al., 2024). While promising interventions, such as STEM inquiry and guided inquiry approaches, have demonstrated positive impacts on students' critical thinking skills (Irwanto et al., 2024; Pahrudin et al., 2021), their widespread adoption and consistent implementation remain a challenge. This gap between curricular aspirations and practical realities necessitates further investigation into the specific challenges and opportunities for developing critical thinking skills within the Indonesian educational context.

Recent studies focusing on Indonesian university students highlight the need for a more nuanced understanding of the relationship between critical thinking and argumentative writing. Research suggests that incorporating metacognitive and critical thinking strategies into writing instruction can significantly improve students' argumentative writing performance (Murtadho, 2021). Furthermore, studies have identified specific gaps in critical and creative literacy skills within argumentative writing courses, underscoring the need for targeted interventions to address these deficiencies (Zamzam et al., 2024). The efficacy of various pedagogical models, such as the POE2WE model, in enhancing argumentative writing abilities, particularly in relation to students' existing critical thinking levels, has also been explored (Haryanti et al., 2024). These findings collectively emphasize the crucial role of critical thinking in argumentative writing and the need for ongoing research to inform effective instructional practices.

Given the complexities of critical thinking and its multifaceted relationship with writing, this study seeks to investigate the level of critical thinking ability demonstrated by Indonesian university students in their argumentative essays. By utilizing the well-established Marguerite and Ennis framework (1993), which has been widely employed in research on critical thinking assessment (Chason et al., 2017; Demeter et al., 2019; Hidayati et al., 2024; Mehta & Al-Mahrooqi, 2015), this study aims to provide a detailed analysis of students' performance across specific components of critical thinking. This granular approach offers the potential to reveal nuanced insights into students'

strengths and weaknesses, informing targeted instructional interventions and contributing to a deeper understanding of how critical thinking manifests in argumentative writing. The focus on a specific cohort of English Education students provides a unique lens through which to examine these issues, offering valuable insights into the development of critical thinking skills within a crucial segment of the Indonesian higher education landscape. The findings of this study will contribute to the growing body of knowledge on critical thinking development in non-Western educational contexts, informing pedagogical practices, curriculum development, and ongoing efforts to equip Indonesian students with the essential skills needed to thrive in the 21st century.

METHOD

This study employed a descriptive-quantitative research design with content analysis to examine students' critical thinking abilities manifested in their argumentative essays. Quantitative methods, characterized by their empirical, objective, measurable, rational, and systematic nature (Sugiyono, 2010), ensure rigor and replicability in the analysis. Content analysis, as defined by Riffe and Fico (1999), involves the systematic examination of communication symbols assigned numeric values according to valid measurement rules. This approach allows for the statistical analysis of relationships between these values to describe communication, draw inferences about meaning, and understand the context of both production and consumption. By quantifying aspects of critical thinking within the essays, this study aimed to provide a comprehensive and objective assessment of students' skills.

The research focused on a specific cohort of 33 students from Class B of the fourth semester, English Education Department, UIN Raden Intan Lampung, in the academic year 2020/2021. This class was selected using simple random sampling from the four available classes within the department lectured by the same instructor. While the total population consisted of 127 students across classes A, B, C, and D, Class B was deemed representative by the instructing lecturer for the purposes of this study. Data was collected through students' argumentative essays written on assigned topics. These essays provided a platform for students to demonstrate their critical thinking skills in a structured and authentic writing task.

To evaluate critical thinking within the essays, the study utilized "The Criteria and Scoring Sheet for Critical Thinking Essay Test" developed by Marguerite Finken and Robert Ennis (1993). This rubric provides detailed indicators and scoring criteria across six key aspects of critical thinking: focus, supporting reasons, reasoning, organization, conventions, and integration. Each aspect is assessed on a six-point scale, offering a nuanced evaluation of students' performance.

The mean score for each aspect was calculated using the formula: $m = \Sigma fx / N$ (Heaton, 1977). To determine the overall prevalence of different levels of critical thinking proficiency, the percentage of students falling within specific score ranges was calculated using the formula: $P = (F/N) * 100\%$. This analysis allowed for the categorization of students' critical thinking abilities as well-developed or developing based on established benchmarks within the framework, providing insights into the overall critical thinking proficiency within the sample.

RESULTS AND DISCUSSION

Results

Table 1. Criteria of Students' Critical Thinking Ability Viewed from Focus

Score Range	Criteria	Student Number (f)	Percentage (p)
1-3	Developing	13	39,39 %
4-6	Well-developed	20	60,60%
Average Score = 4,1		33 (N)	100%

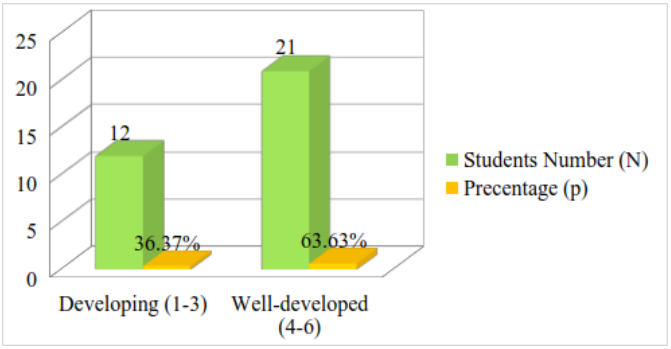

Figure 1. Criteria of Students Critical Thinking Ability Viewed from Focus

The majority of students (60.60%) demonstrated a well-developed ability to establish and maintain a clear focus in their argumentative essays. However, a substantial portion (39.39%) exhibited a developing level of focus, often presenting vague or unclear thesis statements. The average score of 4.1 indicates an overall well-developed ability in this aspect.

Table 2. Criteria of Students Critical Thinking Ability Viewed from Supporting Reason

Score Range	Criteria	Student Number (f)	Percentage (p)
1-3	Developing	12	36,37 %
4-6	Well-developed	21	63,63%
Average Score = 4,1		33 (N)	100%

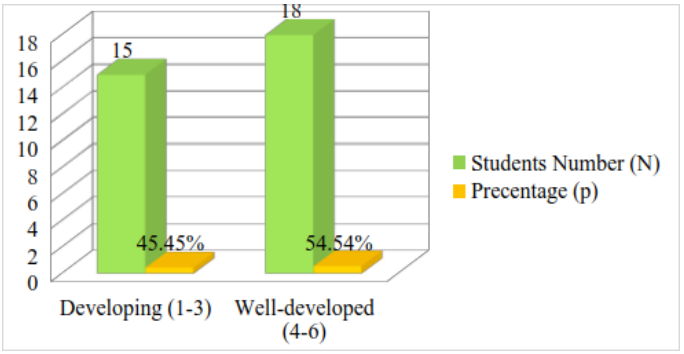

Figure 2. Criteria of Students Critical Thinking Ability Viewed from Supporting Reason

Similar to focus, a larger proportion of students (63.63%) presented well-developed supporting reasons, utilizing credible evidence and factual information. 36.37% of students showed a developing proficiency in providing supporting reasons, sometimes relying on questionable or dubious sources. The average score was 4.1, signifying a well-developed skill in this area.

Table 3. Criteria of Students Critical Thinking Ability Viewed from Reasoning

Score Range	Criteria	Student Number (f)	Percentage (p)
1-3	Developing	15	45,45 %
4-6	Well-developed	18	54,54%
Average Score = 3,8		33 (N)	100%

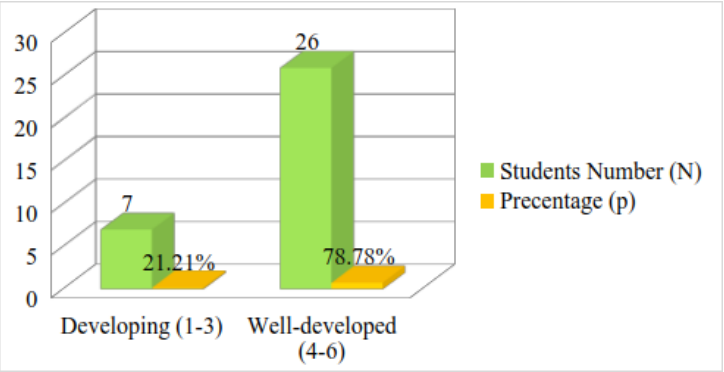

Figure 3. Criteria of Students Critical Thinking Ability Viewed from Reasoning

In contrast to the previous two aspects, reasoning presented a greater challenge for students. While 54.54% were categorized as well-developed, 45.45% fell into the developing category, indicating difficulties in constructing clear and well-supported arguments. The average score of 3.8 suggests that reasoning was the weakest area of critical thinking among the students. This was the only aspect with an average score below 4, classifying it as developing.

Table 4. Criteria of Students Critical Thinking Ability Viewed from Organization

Score Range	Criteria	Student Number (f)	Percentage (p)
1-3	Developing	7	21,21 %
4-6	Well-developed	26	78,78 %
Average Score = 4,3		33 (N)	100%

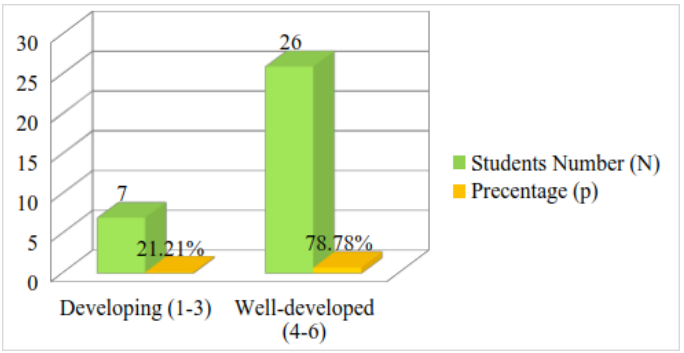

Figure 4. Criteria of Students Critical Thinking Ability Viewed from Organization

Significant majority (78.78%) displayed well-developed organizational skills, structuring their essays with a clear and logical flow of ideas. A smaller portion (21.21%) exhibited developing organizational skills, sometimes presenting unrelated points or lacking a cohesive structure. The average score of 4.3 signifies a strong overall ability in the organization.

Table 5. Criteria of Students Critical Thinking Ability Viewed from Conventions

Score Range	Criteria	Student Number (f)	Percentage (p)
1-3	Developing	7	21,21 %
4-6	Well-developed	26	78,78 %
Average Score = 4,3		33 (N)	100%

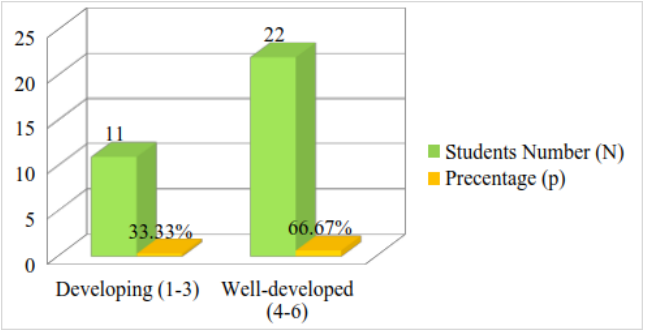

Figure 5. Criteria of Students Critical Thinking Ability Viewed from Conventions

Mirroring the findings for organization, 78.78% of students demonstrated well-developed skills in adhering to the conventions of standard English. 21.21% showed a developing mastery of conventions, making errors in punctuation, capitalization, spelling, or sentence construction. An average score of 4.3 indicates a strong overall proficiency in this aspect.

Table 6. Criteria of Students Critical Thinking Ability Viewed from Integration

Score Range	Criteria	Student Number (f)	Percentage (p)
1-3	Developing	11	33,33 %
4-6	Well-developed	22	66,67 %
Average Score = 4,2		33 (N)	100%

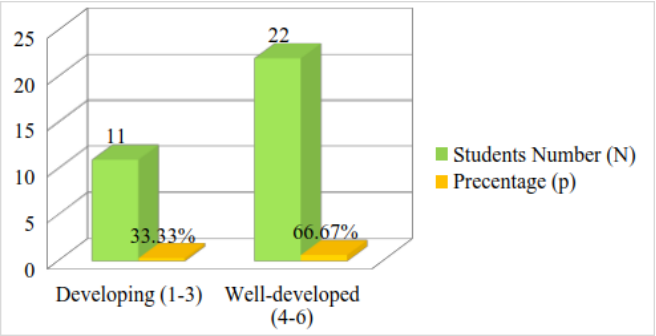

Figure 6. Criteria of Students Critical Thinking Ability Viewed from Integration

The majority of students (66.67%) effectively integrated various elements of their essays, presenting a cohesive and well-developed argument. A notable 33.33% showed a developing level of integration, sometimes presenting ideas unrelated to the given topic or failing to fully achieve the assigned task. The average score of 4.2 suggests a generally well-developed ability in integration.

Table 7. Average of Students Critical Thinking Ability Viewed from All Aspect

Component	Mean	Criteria
Focus	4,1	Well-developed
Supporting Reason	4,1	Well-developed
Reasoning	3,8	Developing
Organization	4,3	Well-developed
Convention	4,3	Well-developed
Integration	4,2	Well-developed
Overall	**24,8**	**Well-developed**

Considering all six aspects, the overall average score of 24.8 (out of a possible 36) indicates that the students, as a group, demonstrated a well-developed level of critical thinking ability in their argumentative essays. While five students were categorized as developing based on their total scores, a substantial majority (28 students) were classified as well-developed. This suggests that while there is room for improvement, particularly in reasoning, the students generally possess a strong foundation in critical thinking skills.

Discussion

This study investigated the critical thinking abilities of Indonesian university students in their argumentative essays, revealing a nuanced picture of strengths and weaknesses across different aspects of critical thinking. The findings, while generally positive, indicating an overall well-developed level of critical thinking, warrant critical comparison with existing research to contextualize the results and identify areas for pedagogical intervention.

The strong performance in focus and supporting reasons aligns with the Indonesian government's emphasis on incorporating 21st-century skills into the curriculum (Afandi et al., 2019). The students' ability to clearly define their arguments and support them with credible evidence suggests that these curricular reforms may be yielding positive results. However, the presence of a significant minority still struggling with these foundational aspects (39.39% for focus and 36.37% for supporting reasons) echoes concerns raised by Parker (2017) regarding the practical implementation of curriculum changes and the need for more effective teacher training, especially in fostering critical thinking within specific subjects like mathematics (Trisnani et al., 2024). While STEM education is gaining traction (Nugroho et al., 2019), the findings underscore the need for more comprehensive frameworks incorporating Education 4.0 principles (González-Pérez & Ramírez-Montoya, 2022) that translate into tangible improvements in students' critical thinking across disciplines. The results suggest that merely introducing new curriculum content is insufficient without adequate pedagogical support to ensure effective implementation.

The relatively weaker performance in reasoning (average score of 3.8, the only aspect categorized as developing) presents a more complex challenge. This finding resonates with studies highlighting the difficulties students face in applying logical reasoning and considering alternative perspectives (Ma & Li, 2022). It challenges the assumption that proficiency in argumentative writing automatically translates to strong critical thinking skills, lending credence to Southworth's (2020) argument that traditional argumentative genres may actually hinder open-mindedness and inadvertently cultivate dogmatism. The observed weakness in reasoning, despite relatively strong performance in other areas, suggests a critical need for instructional strategies specifically targeting the development of logical reasoning, evaluation of evidence, and consideration of alternative perspectives, as advocated by Lu and Swatevacharkul (2020). Furthermore, it highlights the importance of going beyond surface-level assessment of argumentative writing to delve deeper into the underlying cognitive processes involved in critical thinking. The findings raise the question of whether current pedagogical approaches adequately address the nuanced challenges of developing genuine critical thinking dispositions, as opposed to simply teaching the formal structure of argumentation.

The strong performance in organization and conventions, with a significant majority of students excelling in these areas, might be attributed to the emphasis on English language instruction in the Indonesian education system, particularly the focus on writing skills for academic and professional success (Asrifan, 2021; Lisnawati, 2018). However, it is crucial to avoid complacency and ensure that these technical skills are not prioritized at the expense of deeper critical thinking development. While proficiency in these areas is undoubtedly important, they should be viewed as tools facilitating critical thinking, not as ends in themselves. The findings highlight the need for a balanced approach that integrates the development of both technical writing skills and the cognitive abilities required for critical thinking, aligning with calls for more comprehensive approaches to writing instruction (Murtadho, 2021; Zamzam et al., 2024).

The relatively good performance in integration (average score of 4.2) suggests that students generally possess the ability to synthesize information and present a cohesive argument. However, the presence of a substantial minority (33.33%) struggling with integration indicates that a significant portion of students need further support in connecting different parts of their arguments and ensuring overall coherence. While interventions like the POE2WE model and specific critical thinking training

have shown promise (Haryanti et al., 2024), the findings suggest the need for ongoing efforts to strengthen students' ability to synthesize information and construct holistic arguments. This aligns with research advocating for assessment practices that emphasize analytic skills and personal meaning-making rather than just technical proficiency (Anderson et al., 2023).

This study contributes to the growing body of research on critical thinking in non-Western educational contexts, specifically within Indonesia. The findings corroborate some previous research while also offering new insights that challenge existing assumptions. The overall positive results in areas like focus, supporting reasons, organization, and conventions suggest that educational reforms aimed at promoting 21st-century skills may be having a positive impact. However, the persistent weakness in reasoning, coupled with the significant portion of students struggling with integration, highlights the need for targeted pedagogical interventions that go beyond surface-level instruction and address the deeper cognitive processes involved in critical thinking. Future research should explore the specific pedagogical strategies that can effectively enhance reasoning skills and foster genuine critical engagement with ideas within the Indonesian context. Further investigation is also needed to understand the complex interplay between digital literacy and critical thinking, as suggested by Indah et al. (2022) and Darwin et al. (2023). A longitudinal study tracking the development of critical thinking skills over time would provide valuable insights into the long-term impact of educational interventions. Finally, research exploring the effectiveness of different assessment methods for critical thinking in writing, leveraging frameworks like those discussed by Demeter et al. (2019), could strengthen the methodological rigor of future studies in this area.

CONCLUSION

This study provides compelling evidence of the complex and multifaceted nature of critical thinking development among Indonesian university students. While demonstrating proficiency in areas such as focus, supporting reasons, organization, and conventions, the students exhibited a notable weakness in reasoning, a crucial component of critical thinking. This finding highlights the need for targeted pedagogical interventions that specifically address the development of logical reasoning skills, including the ability to analyze evidence, evaluate arguments, and consider alternative perspectives. Although the overall critical thinking ability of the students was categorized as well-developed, the persistent challenges in reasoning and integration underscore the importance of moving beyond surface-level instruction in argumentative writing to foster deeper cognitive engagement with ideas. The study's findings contribute valuable insights for educators, curriculum developers, and policymakers seeking to enhance critical thinking skills within the Indonesian higher education context, emphasizing the need for a more nuanced and comprehensive approach to critical thinking instruction and assessment. The results underscore the importance of not only teaching the formal structures of argumentation but also cultivating the intellectual dispositions that underpin genuine critical inquiry. Future research should explore specific pedagogical strategies and assessment methods that can effectively address the identified challenges and promote more robust critical thinking skills among Indonesian students.

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