Exploring critical literacy of elementary school teacher education students through semantic studies

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ABSTRACT

Developing critical literacy is crucial for elementary school teacher education students to understand texts beyond their literal meanings. This study aimed to describe students' critical literacy skills in interpreting texts from a semantic perspective. Using a descriptive qualitative approach, data were collected from text analysis assignments and class presentations of 30 students and analyzed using the interactive model of Miles, Huberman, and Saldaña. The findings indicate that students performed well in identifying denotative meanings, demonstrated moderate ability in interpreting connotative meanings and synonymy/antonymy relationships, but struggled with hyponymy/polysemy relationships and ideological or contextual reflection. These results suggest that students are more adept at understanding literal meanings than at interpreting implicit or contextual meanings. This study highlights the importance of explicitly integrating semantic studies into teacher education programs to strengthen prospective teachers' critical literacy, particularly in analyzing complex meaning relationships and the ideological dimensions of texts.

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1. INTRODUCTION

Students in the Elementary School Teacher Education study program should ideally possess adequate critical literacy competencies to support their roles as future educators in the elementary schools. Critical literacy extends beyond literal text comprehension to include the interpretation of implicit meanings, identification of bias, and sociocultural contextualization of texts (McLaughlin & DeVoogd, 2020; Meloche et al., 2020). It empowers students to question the origins and purposes of texts, leading to a deeper understanding and insightful reader responses. In this regard, Freebody and Luke's (1990) Four Resources Model offers a comprehensive framework for positioning readers as code breakers, meaning makers, text users, and text analysts, highlighting the multilayered competencies required for critical literacy. Similarly, Fairclough (1995) in the Critical Discourse Analysis (CDA) framework emphasized how language constructs and reproduces ideologies, making it highly relevant for linking semantic studies with broader sociocultural interpretations. Integrating these frameworks strengthens the theoretical basis of this study, situating semantic analysis as both a linguistic practice and a critical tool for uncovering hidden power relations in texts.

Semantic analysis plays a significant role in language learning and communication, enhancing the understanding of word meanings, relationships, and contexts (Alsayed, 2020). By exploring denotative and connotative meanings, synonymy/antonymy, hyponymy/polysemy, and ideological reflection, semantic studies allow prospective teachers to critically analyze both the surface and deeper layers of meaning in texts (Khairani & Susiawati, 2024). Within the CDA tradition, semantic choices are never neutral but rather linked to ideological positioning, thus highlighting the importance of equipping students with tools for semantics-based critical literacy.

Research across different contexts confirms the urgency of these competencies. For instance, studies on EFL teacher education in Asia have shown that preservice teachers often struggle to apply critical literacy in analyzing multimodal texts and sociopolitical issues (Midgette et al., 2023). In Europe, Szabó (2021) found that future teachers need explicit training to critically navigate contradictory online information sources. These findings underline that the challenge of fostering critical literacy is global, and strengthening the semantic foundation of literacy education is relevant not only in Indonesia but also internationally.

Preliminary studies in the Indonesian context indicate that many prospective elementary school teachers can identify literal meanings but encounter difficulties linking meanings to broader contexts. Limited experience with discourse analysis and a lack of exposure to complex texts contribute to these challenges (Lesley et al., 2007; Linder & Falk-Ross, 2020). If such gaps remain unaddressed, they will reduce future teachers' ability to foster critical literacy among elementary school students. Therefore, this study positions semantic studies as both a linguistic and critical framework to bridge the gap between literal comprehension and critical interpretation, preparing future teachers to become effective facilitators of critical literacy in schools and beyond.

2. METHODS

This study employed a descriptive qualitative design to explore prospective elementary school teachers' critical literacy skills in understanding texts through semantic analysis. A qualitative approach was chosen because it provides a holistic understanding of phenomena, allowing researchers to uncover meanings and interpret participants' experiences in depth (Creswell, 2014). Participants and Sampling. The research subjects consisted of 30 prospective elementary school teacher students enrolled in the Linguistic Studies course in the odd semester of the 2024/2025 academic year at a state university in Indonesia. Participants were selected using purposive sampling with specific criteria: (1) students had completed prerequisite courses in linguistics, (2) demonstrated basic reading comprehension skills, and (3) actively participated in class discussions. These criteria ensured that the participants had sufficient foundational knowledge to engage in semantic-based text analysis.

Data were collected through documentation and observations. Documentation involved students' written assignments on text analysis using a semantic perspective, covering denotative and connotative meanings, meaning relations (synonymy, antonymy, hyponymy, polysemy), and ideological/contextual reflections. Classroom observations were conducted during presentation sessions to capture students' argumentation strategies, analytical depth, and ability to respond to peers and instructors. Coding Scheme and Evaluation Rubric. The analysis of student assignments followed a coding framework adapted from Lyons (1995) for semantic categorization and Janks (2012) for critical literacy dimensions. A rubric was developed to assess five aspects: (1) identification of denotative meaning, (2) interpretation of connotative meaning, (3) recognition of synonymy/antonymy, (4) recognition of hyponymy/polysemy, and (5) ideological and contextual reflection. Each aspect was rated on a 3-point scale (low, moderate, high) based on accuracy, depth, and contextual relevance. To ensure credibility, two independent raters coded the assignments using a rubric. Inter-rater reliability was calculated, resulting in an agreement rate of 87%. Discrepancies were resolved through discussion until a consensus was reached. Triangulation between written assignments and observational data further strengthened the findings' validity. This procedure aligns with qualitative research standards, emphasizing transparency and trustworthiness in coding and interpretation (Braun & Clarke, 2022). Data were analyzed using the interactive model of Miles, Huberman, and Saldaña (2014), which includes three stages: (1) data reduction, (2) data display, and (3) conclusion-drawing and verification. Codes from the rubric were first applied deductively, while emergent themes were identified inductively to capture unexpected patterns in students' semantic and critical literacy performances.

3. RESULTS

The results of data analysis from written assignments and observations show variations in the critical literacy abilities of prospective elementary school teacher students in understanding texts through semantics. The findings are divided into four main aspects: (1) ability to identify denotative meaning, (2) ability to interpret connotative meaning, (3) understanding meaning relationships, and (4) ideological/contextual reflection. In general, students' abilities were in the medium to high category for denotative meaning, but decreased in the aspects of connotative meaning, complex meaning relationships (hyponymy and polysemy), and ideological reflection. This shows that most students tend to understand texts literally but still have difficulty linking meaning to social and ideological contexts.

Table 1. Average Score of Critical Literacy Skills Based on Semantic Study

Semantic Literacy Aspect Average Score (%) Category	Semantic Literacy Aspect Average Score (%) Category	Semantic Literacy Aspect Average Score (%) Category
Denotative Meaning	78	High
Connotative Meaning	62	Moderate
Meaning Relations (Synonymy/Antonymy)	55	Moderate
Meaning Relations (Hyponymy/Polysemy)	48	Low
Ideological/Contextual Reflection	45	Low

*Category description: High (≥ 75%), Moderate (50%–74%), Low (< 50%)

These results indicate that the highest performance was achieved in denotative meaning, with an average score of 78%, placing it in the high category. Connotative meaning and meaning relations (synonymy/antonymy) fell within the moderate category, with scores of 62% and 55%, respectively, suggesting that students had a fair but not yet optimal ability to interpret implied meanings and recognize basic lexical relationships. Meanwhile, meaning relations (hyponymy/polysemy) scored 48%, and ideological/contextual reflection scored 45%, both categorized as low, indicating difficulties in identifying complex semantic relationships and critically analyzing texts within broader ideological or contextual frameworks. Overall, the data suggest that students are stronger in understanding literal meanings but need significant improvement in higher-order semantic and critical-reflection skills.

Figure 1 presents a bar graph illustrating the distribution of students across different ability categories for each semantic literacy aspect. The data revealed notable variations in performance among the assessed aspects. Denotative meaning stood out as the aspect with the largest proportion of students in the high-ability category, totaling 20 individuals. In contrast, ideological/contextual reflection recorded the highest number of students in the low-ability category, with 16 participants. This pattern highlights a clear gap between students' strengths in understanding literal meanings and their ability to critically reflect on ideological or contextual dimensions.
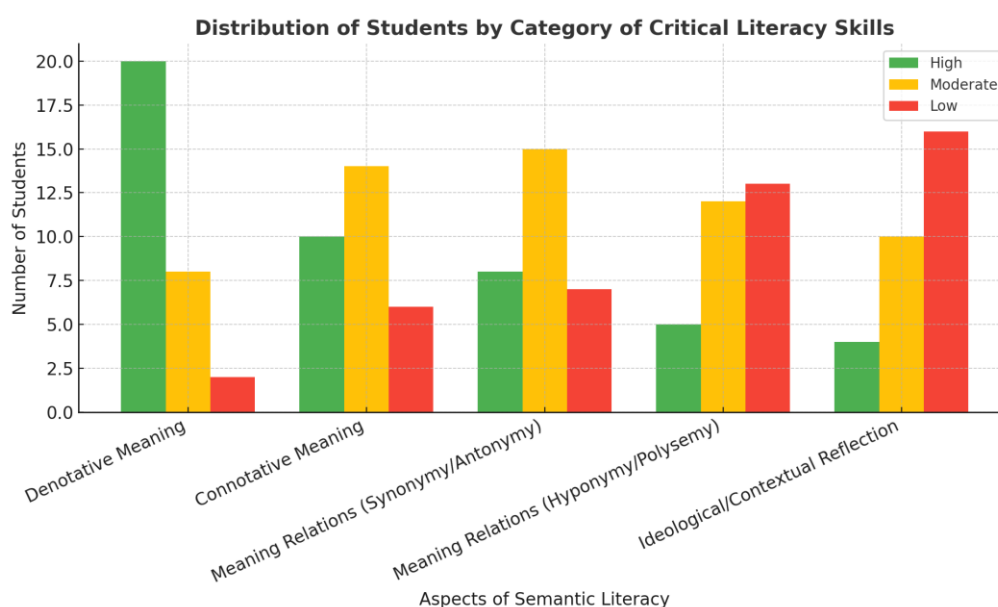

Figure 1. Distribution of the Number of Students per Critical Literacy Ability Category

The bar graph illustrates the distribution of students across the high, moderate, and low categories for each aspect of semantic literacy. Denotative meaning showed the highest number of students in the high category, with 20 students, indicating a strong ability to understand literal meanings. In terms of connotative meaning, most students fell into the moderate category (14 students), reflecting a fair but not advanced capacity to interpret implied meanings. For meaning relations (synonymy/antonymy), most students were also in the moderate category (15), suggesting partial mastery of basic semantic relationships. In meaning relations (hyponymy/polysemy), the highest proportion of students were in the moderate category (12 students), but a notable number were in the low category (13 students), pointing to challenges in identifying complex lexical relations. Finally, ideological/contextual reflection had the largest number of students in the low category (16 students), highlighting significant difficulties in critically analyzing texts within broader ideological or contextual frameworks. Overall, the graph indicates that while students excel in literal comprehension, their skills in higher-level semantic analysis and critical reflection are underdeveloped.

Observations show that Students with high scores for connotative meaning and ideological reflection generally actively relate texts to personal experiences or current social issues. Conversely, students with low scores in these aspects tended to provide descriptive analyses without critical interpretation. Observations during presentations also revealed that students with more semantic analysis skills were able to defend their arguments with relevant linguistic data. In general, the graph above indicates that basic abilities in understanding literal meaning are quite good, but deeper analytical skills—especially those involving connotation, complex meaning relationships, and ideological reflection—still need to be strengthened through more applied and contextual semantic-based learning.

4. DISCUSSION

The results of this study indicate that elementary school teacher education students demonstrate stronger abilities in identifying denotative meaning but weaker performance in interpreting connotative meanings, recognizing complex meaning relations, and especially in conducting ideological or contextual reflection. The relatively high mastery of literal understanding aligns with prior research suggesting that pre-service teachers often excel in surface-level comprehension but struggle with deeper critical engagement (Lesley et al., 2007; Linder & Falk-Ross, 2020). The finding of low performance in ideological/contextual reflection (45%) resonates with global studies highlighting similar limitations among pre-service teachers in other contexts. International research has shown that prospective teachers frequently face difficulties in applying critical literacy to uncover hidden ideologies or sociopolitical dimensions in texts (Midgette et al., 2023; Linder & Falk-Ross, 2020). Likewise, a large-scale European study reported that teacher candidates possess only moderate levels of critical thinking and critical literacy, indicating a broader trend beyond the Indonesian context (Szabó, 2021). These parallels suggest that the struggle to move beyond literal interpretation is not unique to Indonesia but reflects a global challenge in teacher education.

However, local cultural and curricular contexts also shape these outcomes. In Indonesia, teacher education curricula have traditionally emphasized linguistic accuracy and reading comprehension, rather than ideological critique or discourse analysis. This emphasis may explain why students perform relatively well in denotative tasks but less so in critical or contextual dimensions of meaning. Additionally, cultural factors such as high respect for authority and a tendency toward harmony-oriented classroom interactions may limit students' willingness to challenge texts or openly question embedded ideologies. As Freire's critical pedagogy suggests, developing critical consciousness requires dialogic and participatory learning environments (Ćumura & Petrović, 2022), which may not always be consistently fostered in traditional instructional settings in Indonesia.

Another dimension influencing these outcomes is students' limited exposure to authentic, culturally diverse, and ideologically complex texts. Prior studies in EFL contexts in Asia indicate that when preservice teachers engage with multimodal or socially contested texts, their critical literacy skills can be activated more effectively (Midgette et al., 2023). This suggests that curriculum design in Indonesian teacher education should integrate more varied texts and scaffold reflective discussions to gradually build students' confidence and competence in ideological analysis. Recent scholarship emphasizes the importance of scaffolded reflection in supporting critical literacy development. Bentley and Wessel-Powell (2024) found that structured reflective activities reduced anxiety and prepared pre-service teachers to facilitate critical conversations about justice-oriented texts. Similarly, Rogers et al. (2016) argue that critical literacy should move beyond textual analysis to include engagement with institutional and social discourses and position readers as agents of change. These perspectives highlight that semantic studies in teacher education should not only train students to identify meanings but also to interrogate the ideological and cultural contexts embedded in the texts.

The pedagogical implications of this study are significant. First, embedding reflective and dialogic practices into classroom tasks can help students bridge the gap between literal comprehension and ideological critique. Second, exposure to texts rich in symbolism, metaphors, and cultural references can enhance their ability to interpret layered meanings. Third, training in identifying bias and multiple viewpoints fosters what Sappa and Aprea (2017) describe as "critical-constructive distrust," an essential skill for navigating today's contested media environments. Integrating these strategies into teacher education can better prepare pre-service teachers to cultivate critical literacy in their future classrooms.

Despite these contributions, this study has some limitations. The sample was restricted to one institution, which limited generalizability. The cross-sectional design prevents conclusions about long-term development, and the absence of a control group restricts claims regarding causal relationships. Future research should adopt longitudinal and quasi-experimental designs to evaluate the impact of semantic-based interventions on critical literacy over time. Longitudinal and quasi-experimental designs have demonstrated persistent improvements in critical literacy skills following targeted interventions, as shown in college settings, where media literacy programs led to sustained gains over a semester (Bergstrom et al., 2018), and critical literacy models improved exam performance among diverse community college students

(Lehner et al., 2017). Qualitative approaches, such as narrative inquiry and ethnographic observation, may also offer deeper insights into how students negotiate ideological meanings in authentic contexts.

In summary, these findings confirm that while pre-service teachers possess adequate skills in recognizing literal meaning, their ability to interpret implicit and ideological dimensions remains limited. Addressing this gap requires the integration of semantic analysis with critical literacy pedagogy, reflective practice, and dialogic engagement. Such an approach will not only strengthen students' academic competencies but also empower them to become transformative educators capable of guiding their future students to critically read texts and the world.

5. CONCLUSION

This study found that elementary school teacher education students have a good mastery of denotative meaning but are still weak in interpreting connotative meaning, understanding complex meaning relationships, and conducting ideological or contextual reflection. This pattern indicates that students' critical literacy skills tend to focus on literal understanding, while the ability to analyze in-depth social, cultural, and ideological contexts still needs to be strengthened. The implications of this finding are the need for learning strategies that integrate semantic studies with a critical literacy approach, the use of texts rich in connotative meaning, and reflective discussions that encourage students to connect language with social realities. This approach is expected to equip prospective elementary school teachers with language analysis skills that are not only linguistically accurate, but also sensitive to the implicit messages contained in the text.

Ethical Approval
Ethical approval was not required for this study.

Informed Consent Statement
Informed consent was not obtained for this study.

Author Contributions
Nanda Veruna Enun Kharisma contributed to the conceptualization of the research framework and the interpretation of the findings. Yunita Miftahul Jannah was responsible for conducting the literature review and supporting the final editing of the manuscript. All authors read, revised, and approved the final version of the manuscript for submission.

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The authors declare no conflicts of interest.

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The data presented in this study are available upon request from the corresponding author for privacy.

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Notes on Contributors

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