Fostering Critical Thinking Skills in Pre-Service Teachers: Examining Its Impact on Pedagogical Competence in Instructional Designs

Endang Mastuti Rahayu

[1] English Language Education Department, Faculty of Teacher Training and Education, University of PGRI Adi Buana Surabaya, Indonesia: endangrahayu@unipasby.ac.Id

ABSTRACT

One of the core skills that helps aspiring teachers create learner-centered, reflective, and successful lessons is critical thinking. However, critical thinking is often assumed to develop implicitly in teacher preparation programs, leading to fragmented instructional design and limited pedagogical reasoning. With a focus on instructional design practice, this study aims to investigate how pre-service teachers' pedagogical competency was affected by the Development of critical thinking abilities. Fifteen students from PGRI Adi Buana University Surabaya's English Language Education Department, batch of 2022, who were enrolled in the instructional design course, participated in this study using a descriptive qualitative research methodology. Data were gathered through semi-structured interviews, reflective journals, classroom observation, and analysis of lesson plan documents. Learning objectives, instructional activities, and assessment procedures are more closely aligned, and pedagogical decision-making is more reflective when critical thinking skills are developed. These findings showed that essential skills of thinking Development enhance pedagogical competence. The capacity of student instructors to anticipate student needs, justify instructional decisions, and incorporate higher-order thinking exercises into their lesson plans has improved. This study concluded that, to enhance pedagogical competence and prepare future educators for challenging learning environments, critical thinking must be explicitly incorporated into the teacher education curriculum.

Keywords: Critical Thinking Skills, Pre-service Teachers, Pedagogical Competence, Instructional Designs, Descriptive Qualitative Research

*Corresponding Author:
email corresponding author

Article history:
Received: 20-10-2025
Revised: 13-11-25
Accepted: 02-12-2025
Published: 28-12-2025

Applied Linguistics and English Education, Vol. 03
Issue 02, 2025, Pages 12-18.

E-ISSN 2987-7741

INTRODUCTION

To meet the ever-increasing demands of education in the twenty-first Century, teachers need to be more competent educators who can think critically. The modern

classroom is characterized by rapidly evolving curricula, a wide range of student needs, complex learning environments, and rising demands for student-centered learning. Education experts always stress the importance of critical thinking in teacher preparation (Christodoulou & Papanikolaou, 2023). It serves as the cornerstone of reflective practice, adaptive pedagogical decision-making, and successful instructional design (Christodoulou, 2023). Critical thinking is characterized as intentional, self-regulated judgment and includes analysis, assessment, interpretation, and reflection. In teacher education, this cognitive process enables aspiring educators to analyze learning objectives, appraise pedagogical approaches, and make decisions aligned with them, as well as with instructional activities and assessment techniques.

In teacher education, this cognitive process enables aspiring educators to analyze learning objectives, appraise pedagogical approaches, and make decisions aligned with them, as well as with instructional activities and assessment techniques. According to research, educators who possess critical thinking skills are better equipped to assess the educational environment, predict students' traits, and design cohesive, meaningful, and adaptable learning experiences that mirror the realities of the classroom. Despite its acknowledged significance, critical thinking is still not taught in teacher education programs. Mastering theoretical course material and fundamental knowledge is still prioritized in many programs. Instead of treating critical thinking as an innate capacity, they frequently treat it as a skill that must be expressly developed. As a result, aspiring educators may not have sufficient opportunities to engage in reflective inquiry, systematic critical analysis, or pedagogical reasoning related to instructional design. Pre-service teachers' instructional designs often don't align with their objectives, according to empirical data. High intelligence is vital in the critical discipline of instructional design, which is the methodical planning and structuring of learning experiences. Effective instructional design requires a number of components, including analyzing student demographics, interpreting curriculum standards, choosing the best pedagogical strategy, and assessing the coherence and efficacy of training. These tasks naturally call for analytical reasoning, introspective judgment, and decision-making all crucial elements of critical thinking (Fazriyah et al., n.d.). However, studies have indicated that pre-service instructors frequently struggle to show instructional reason and pedagogical consistency. This is particularly evident in situations where they were trained without obvious cognitive and reflective support (Boonmoh, 2025).

Critical thinking and pedagogical skills can be improved by using pedagogical strategies such problem-based learning, collaborative inquiry, and reflective practice(Karim et al., 2024; Moh. Rif'attullah & Ciptaningrum, 2024). This possibility is demonstrated by recent teacher education studies (Karim et al., 2024; Moh. Rif'attullah & Ciptaningrum, 2024). Furthermore, studies on critical pedagogy and learner-centered learning models show that engaging pre-service teachers in critical inquiry improves their sensitivity to the sociocultural aspects of teaching, helps them develop professional identities, and increases their reflective awareness (Āboltiņa et al., 2023; Makoa & Segalo, 2023). Little is known about how aspiring teachers cultivate critical thinking and how it affects their lesson design explicitly. However, recent research has focused primarily on general learning outcomes or specific learning methodologies. Furthermore, a systematic review shows that although pre-service teacher education often discusses creativity and reflection, research on the Development of structured and sustained critical thinking remains lacking and

fragmented, especially in practical instructional design. There were serious flaws in a qualitative study that examined how aspiring teachers integrated critical thinking into their decisions about instructional design and pedagogical competency, drawing on cognitive and pedagogical reasoning.

By investigating how preschool instructors might gain pedagogical competence through the Development of critical thinking, this study aims to remedy this imbalance. Using a descriptive qualitative methodology, this study examines preschool teachers' experiences with lesson design documents, semi-structured interviews, reflective journals, and classroom observations. By gathering detailed and contextual information on participants' cognitive and pedagogical processes, this study seeks to better understand the relationship between teacher education and critical thinking and pedagogical skills. It is intended that these results will promote teacher preparation programs that emphasize critical thinking as the cornerstone of successful instructional design, both theoretically and practically.

METHODS

A descriptive qualitative research design was used to thoroughly examine the pedagogical reasoning and narratives of pre-service teachers (Haryani et al., 2024). This method supports an in-depth contextual examination of the experiences of prospective English Language Education students at PGRI Adi Buana University Surabaya in an instructional design course assignment that involves critical thinking. Fifteen research participants were students from the 2022 batch applying to the English Language Department. The purpose of sample selection is to ensure that participants have been involved in instructional design activities that emphasize critical and reflective thinking practices. Data were collected using several qualitative tools, including classroom observation of learning activities that require critical analysis, collaborative problem-solving, and instructional discussion. Engagement, evidence of reasoning, and interaction patterns are recorded in field notes. Reflective Journal: Throughout the course, participants maintain **a reflective journal** documenting how they plan their lessons, pedagogical issues, and how critical thinking influences design decisions (Irfan et al., 2023). **Instructional Design Documents**: The participants' learning plans were collected and analyzed to identify evidence of high pedagogical competence, cohesion, and integration of thinking. Verbal reports on participants' perceptions and experiences are provided as a supplement to the semi-structured interview data.

RESULTS

This study investigated the relationship between pre-service teachers' pedagogical ability in instructional design and the Development of critical thinking abilities. Five main themes emerged from the thematic analysis of semi-structured interviews with 15 pre-service teachers, reflecting the participants' experiences and viewpoints.

Critical Thinking as Analytical Pedagogical Reasoning

The results showed that pre-service teachers viewed critical thinking as an analytical process that supports educational decision-making. Participants underlined that, rather than relying solely on lesson plan templates, instructional design required a

conscious examination of learning objectives, instructional designs, and assessment. Participants were able to assess the pedagogical significance of instructional choices and defend them thanks to this analytical attitude. The Development of higher-order cognitive processes necessary for pedagogical competence was reflected in the capacity to evaluate the suitability of instructional strategies and learning exercises critically. Representative responses include:

1. *"Critical thinking means analyzing objectives before choosing teaching strategies"* (R1).
2. *It involves questioning whether activities truly support learning goals"* (R2).
3. *"It helps me justify why I choose certain methods"* (R4).

Improved Instructional Coherence and Alignment

The improvement of instructional coherence was another noteworthy discovery. Participants reported that critical thinking made it easier to align learning objectives, instructional activities, and evaluation techniques. Lesson plans became more methodical, with logical activity progression and clearer learning sequences. The ability of pre-service teachers to incorporate curriculum elements into coherent lesson plans that promote meaningful learning is reflected in this alignment, which showed increasing pedagogical competency. Examples include:

1. *"Critical thinking connects objectives, materials, and assessment logically"* (R8).
2. *"I ensure learning steps are logical"* (R14).
3. *I create assessments aligned with objectives*

Reflective Practice as a Catalyst for Pedagogical Growth

One crucial way that critical thinking impacted instructional progress was through reflective practice. Participants stated that structured reflection enabled them to improve instructional clarity, identify instructional flaws, and alter course designs. Pre-service teachers were able to assess their pedagogical presumptions and continuously enhance their instructional choices thanks to reflection's support for metacognitive awareness. This research emphasizes the importance of reflection in the Development of instructional ability. Key responses include:

1. *"Reflection helped me identify weaknesses"* (R1).
2. *"It encouraged lesson revision"* (R3).
3. *"Reflection strengthened lesson structure"* (R8).

Challenges in Applying Critical Thinking

Despite the apparent advantages, participants found it challenging to apply critical thinking to instructional designs. These difficulties included a lack of teaching experience, time restraints, ambiguity about the best teaching techniques, and trouble predicting students' reactions. These difficulties suggest that developing critical thinking skills is a slow process that requires consistent mentoring and instructional scaffolding in teacher preparation programs. Illustrative responses

include:

1. *"Limited experience in lesson planning"* (R1).
2. *"Time constraints"* (R3).
3. *"Difficulty anticipating student responses"* (R6).

Theme 5: Professional Readiness and Teaching Adaptability

Lastly, participants consistently linked the Development of critical thinking skills to greater preparedness for professional teaching practice. In actual classroom settings, critical thinking was seen as crucial for professional judgment, flexibility, and informed decision-making. The participants saw critical thinking as a fundamental competency that underpins both successful teaching practices and long-term professional Development, in addition to being a pedagogical talent. Representative statements include:

1. *"It prepares me to teach adaptively"* (R1).
2. *"It prepares me for real classroom challenges"* (R5).
3. *"It supports professional judgment"* (R4).

According to the thematic analysis, improving critical thinking skills enhances instructional reasoning, reflective practice, and professional preparation, thereby contributing to greater pedagogical competence. The results indicate that critical thinking should be explicitly incorporated into instructional design courses within teacher education programs, despite the implementation challenges participants experienced.

DISCUSSION

The study's results offered compelling evidence that critical thinking helped pre-service teachers become more proficient educators, especially in instructional design. The Development of analytical pedagogical reasoning is consistent with constructivist learning theory, which stresses reflective judgment and active knowledge production in professional learning (Adamson & Darling-Hammond, 2015). According to earlier research, critical thinking helps teachers create learner-centered, rationally constructed lessons. This study's improvement in instructional coherence supports this theory (Koh et al., 2015). Pre-service teachers advanced from procedural lesson preparation to deliberate pedagogical design by critically evaluating instructional components, supporting previous results that critical thinking is essential to high-quality instruction. The idea that professional competence emerges through reflection-on-action and reflection-in-action is supported by Schön's (1983) theory of reflective practice, which has been recognized as a catalyst for educational growth (Hartmann et al., 2023). According to recent research in teacher education, reflective activities improve instructional adaptation and pedagogical reasoning (Farrell & Macapinlac, n.d.). According to current research, to promote critical thinking, pre-service teachers should be explicitly incorporated into reflection in instructional design courses.

The difficulties mentioned by participants are similar to those reported in recent international research, which indicate that inexperienced teachers frequently struggle with critical thinking due to cognitive overload and limited experience (Shopia et al., 2022). Based on these findings, it is recommended that teacher education programs enhance the Development of critical thinking skills by offering guided practice, organized scaffolding, and formative feedback. Professional preparedness and critical thinking are closely related, underscoring the study's broader implications. According to current frameworks of teacher competency, critical thinking helps aspiring educators respond to diverse learners, adapt their lessons, and engage in ongoing professional development (Caena & Redecker, n.d.). As a result, encouraging critical thinking supports both long-term professional Development and instructional design competency.

This study has shortcomings despite its contributions. Pre-service teachers may be limited by results based on a tiny sample within a particular institutional environment. Subjective bias may also be introduced by depending too much on self-reported data. These findings could be further validated and expanded upon in future studies using mixed-method techniques, classroom-based observations, or longitudinal designs.

CONCLUSION

This study showed that pre-service teachers who explicitly practice critical thinking improve their pedagogical competency in instructional design. Coherence in planning, analytical reasoning, and reflective awareness were identified as the main results of critical thinking activities. The findings emphasized the importance of incorporating structured, reflective, and analytical exercises into teacher preparation programs to better prepare aspiring educators for classroom demands.

ACKNOWLEDGEMENTS

Thanks to the students of the English Language Education Department, batch of 2022 for contributing to this research as a resource for data. The researcher also has no any conflict of interest in or outside of this article.

REFERENCES

Āboltiņa, L., Lāma, G., Sarva, E., Kaļķe, B., Āboliņa, A., Daniela, L., Rubene, Z., & Bernande, M. (2023). Challenges and opportunities for the development of future teachers' professional competence in Latvia. *Frontiers in Education*, *8*(January), 1–9. https://doi.org/10.3389/feduc.2023.1307387

Adamson, F., & Darling-Hammond, L. (2015). Policy Pathways for Twenty-First Century Skills. In *Assessment and Teaching of 21st Century Skills*. https://doi.org/10.1007/978-94-017-9395-7_15

Boonmoh, A. (2025). *Enhancing Thai Pre-Service Teachers ' Translation Skills Through AI Tools , Social Media , and Public Feedback Online First View*. 1–24.

Caena, F., & Redecker, C. (n.d.). *Aligning teacher competence frameworks to 21st century challenges : The case for the European Digital Competence Framework for Educators (D igcompedu)*. 356–369. https://doi.org/10.1111/ejed.12345

Christodoulou, P. (2023). *education sciences Examining Pre-Service Teachers ' Critical Thinking Competences within the Framework of Education for Sustainable Development : A Qualitative Analysis*.

Farrell, T. S. C., & Macapinlac, M. (n.d.). *Professional Development Through Reflective Practice : A Framework for TESOL Teachers*. *1*(2021), 1–25.

Fazriyah, N., Supriyati, Y., Rahayu, W., Mabruroh, F., Suhandi, A., Sugiarti, T., Kaniawati, I., & Aviyanti, L. (n.d.). *The Increase of Critical Thinking Skills through Mathematical Investigation Approach*. https://doi.org/10.1088/1742-6596/755/1/011001

Hartmann, A., Kruijf, J. V., & Weesep, R. Van. (2023). International Journal of Project Management Asking the right questions : The role of reflection for learning in and between projects. *International Journal of Project Management*, *41*(5), 102494. https://doi.org/10.1016/j.ijproman.2023.102494

Haryani, E., Cobern, W. W., Pleasants, B. A.-S., & Fetters, M. K. (2024). Exploring Pedagogical Strategies: Integrating 21st-Century Skills in Science Classrooms. *Journal of Education in Science, Environment and Health*, 106–119. https://doi.org/10.55549/jeseh.697

Irfan, M., Murray, L., & Ali, S. (2023). Integration of Artificial Intelligence in Academia: A Case Study of Critical Teaching and Learning in Higher Education. *Global Social Sciences Review*, *VIII*(I), 352–364. https://doi.org/10.31703/gssr.2023(viii-i).32

Karim, A., Amin, F., Kabilan, M. K., Reshmin, L., & Amin, E. U. (2024). Pre - service TESOL teachers ' professional - awareness building through reflecting on reflections of critical incidents. *Asian-Pacific Journal of Second and Foreign Language Education*. https://doi.org/10.1186/s40862-024-00254-4

Koh, J. H. L., Chai, C. S., Hong, H. Y., & Tsai, C. C. (2015). A survey to examine teachers' perceptions of design dispositions, lesson design practices, and their relationships with technological pedagogical content knowledge (TPACK). *Asia-Pacific Journal of Teacher Education*, *43*(5), 378–391. https://doi.org/10.1080/1359866X.2014.941280

Makoa, M. M., & Segalo, L. J. (2023). Teacher trade unions, unionization of novice teachers, implications for professional development in South Africa. *ScienceRise*, *4*, 51–58. https://doi.org/10.21303/2313-8416.2023.003246

Moh. Rif'attullah, & Ciptaningrum, D. S. (2024). Exploring Pre-Service Teacher Professional Learning on Their Preparedness for Teaching Practicum. *Formosa Journal of Sustainable Research*, *3*(8), 1779–1798. https://doi.org/10.55927/fjsr.v3i8.10969

Shopia, K., Sudarmaji, I., Purnawati, P., Chairunnisa, D., & Febriliyana, N. (2022). *Analysis of English Teachers' Professional Competence in 21st Century Learning*. https://doi.org/10.4108/eai.25-11-2021.2318834