

Beyond the Research Project: Pre-Service Teachers' Experiences of Classroom Research

M. Irfan Abdur Rahman¹

Universitas KH. Abdul Chalim Mojokerto

E-mail, muhammadirfanabdurrahman16@gmail.com

Fairuz Damarwansyah²,

Universitas KH. Abdul Chalim Mojokerto

Praja Septa Ardianto³,

Universitas KH. Abdul Chalim Mojokerto

Eka Rizki Amalia⁴

Universitas KH. Abdul Chalim Mojokerto

Received: 31st July 2026

Accepted: 11th September 2026

Published: 30th September 2026

Abstract

Classroom research is an essential component of teacher education because it enables pre-service teachers to develop research competence through authentic learning experiences. This study explored pre-service teachers' experiences in conducting classroom research by examining the challenges they encountered, their understanding of research ethics, and the support they perceived throughout the research process. A qualitative descriptive design was employed using written reflection reports as the primary data source. Participants were selected through purposive sampling, and the data were analyzed using Braun and Clarke's thematic analysis. The findings identified three major themes: (1) emotional, methodological, data management, and academic writing challenges; (2) understanding of fundamental research ethics, including informed consent, confidentiality, anonymity, transparency, and responsible data management; and (3) the importance of academic supervision, peer collaboration, and the responsible use of artificial intelligence in supporting the research process. Findings suggest that classroom research contributes to the development of research competence, reflective thinking, and professional awareness. Therefore, teacher education programs should strengthen research methodology instruction by providing authentic research experiences, continuous supervision, ethics education, and guidance on the responsible use of emerging technologies.

Keywords: classroom research, pre-service teachers, research ethics, reflective practice, teacher education.

Introduction

Classroom research has become an important component of teacher education because it enables pre-service teachers to connect educational theories with authentic classroom practices. Through systematic inquiry, they learn to identify instructional problems, collect and analyze classroom data, and make informed decisions to improve teaching and learning. Beyond fulfilling academic requirements, classroom research encourages reflective thinking, evidence-based decision-making, and professional growth, making it an essential element in preparing future teachers (Cochran-Smith & Lytle, 1999; Kolb et al., 2014).

According to Experiential Learning Theory, learning occurs through a continuous cycle of concrete experience, reflective observation, abstract conceptualization, and active experimentation (Kolb et al., 2014). Conducting classroom research allows pre-service teachers to experience authentic educational situations, reflect on the challenges they encounter, develop research knowledge, and apply these experiences to future professional practice. Similarly, Reflective Practice Theory emphasizes that professional competence develops through continuous reflection on experience (Visser,

2010). Reflection reports therefore provide valuable evidence of how future teachers evaluate their learning, recognize their strengths and weaknesses, and construct professional knowledge throughout the research process.

Despite these educational benefits, classroom research is often challenging for novice researchers. Pre-service teachers are required to formulate research questions, select appropriate methodologies, design research instruments, collect and analyze data, and interpret findings while managing other academic responsibilities. Previous studies have reported that many students experience methodological difficulties, limited research experience, insufficient confidence, and time constraints during the research process (Admiraal et al., 2017; Williams & Sembiente, 2022). Academic writing also becomes a significant challenge because students must organize journal articles, synthesize previous studies, and present findings according to academic conventions.

Research ethics constitute another essential aspect of classroom research. Educational research frequently involves students, teachers, and schools, requiring researchers to ensure informed consent, confidentiality, voluntary participation, anonymity, and responsible data management (Creswell & Poth, 2016). Although ethical principles are introduced in research methodology courses, novice researchers often encounter difficulties when applying these principles in authentic research settings. Previous studies have suggested that ethical competence develops not only through theoretical instruction but also through practical experience, reflective learning, and engagement with authentic ethical dilemmas encountered during the research process (Knight, 2023; Tammeleht & Löfström, 2024). Furthermore, teacher-researchers often face context-specific ethical challenges that cannot be fully addressed through institutional ethics guidelines alone, highlighting the importance of continuous ethical reflection and mentoring throughout the research process (Gilliland et al., 2023).

The successful implementation of classroom research also depends on adequate academic support. Effective supervision, constructive feedback, research methodology instruction, and collaboration with peers contribute significantly to students' confidence and research competence (Boud & Dawson, 2023). Recent technological developments have further expanded the learning resources available to students through artificial intelligence applications that assist with academic writing, idea generation, and literature exploration. Nevertheless, these technological tools should complement rather than replace critical thinking and independent decision-making, as responsible AI use requires human oversight, ethical judgment, and critical evaluation of AI-generated content (Antoninis et al., 2023).

Previous studies have primarily focused on the practical and methodological aspects of classroom research among teachers and pre-service teachers. Existing research has discussed various challenges in conducting Classroom Action Research (CAR), including difficulties in identifying research problems, developing research instruments, analysing data, and preparing research reports (Nasrudin et al., 2024; Tulung et al., 2022). Other studies have highlighted the importance of developing research competence through methodological training, mentoring, and professional development programs to improve teachers' ability to conduct classroom research (Kristanto & Dwikurnaningsih, 2022; Nasrudin et al., 2024). Research involving pre-service teachers has also emphasized that engagement in Classroom Action Research contributes to reflective practice, research competence, and professional preparation during teaching practicum (Siregar et al., 2025).

However, previous studies have generally discussed these aspects separately. Few studies have connected challenges, research ethics, and academic support in examining pre-service teachers' classroom research experiences. Research on classroom research challenges has mostly focused on technical and methodological difficulties, while studies on academic support have emphasized supervision and training. Meanwhile, ethical considerations in classroom research have received less attention, particularly regarding how pre-service teachers understand and apply ethical principles during the research process. Therefore, further investigation is needed to understand how challenges, research ethics, academic support, and classroom research experiences are connected in shaping pre-service teachers' research competence. Examining these aspects together may provide deeper insights into the ways classroom research contributes to the professional development of future teachers.

2. Method

This study employed a qualitative descriptive research design to explore pre-service teachers' experiences in conducting classroom research. A qualitative descriptive approach was selected because it enables researchers to provide a clear and comprehensive description of participants' experiences without developing a new theory or interpreting the phenomenon at a highly abstract level (Creswell & Poth, 2016). The participants were pre-service teachers enrolled in an English Language Teacher Education program who had completed a classroom research project as part of their coursework. A total of 11 pre-service teachers participated in this study, with one representative selected from each of the 11 research groups. Purposive sampling was used to recruit participants with direct experience in conducting classroom research, enabling them to provide rich and relevant information related to the research objectives (Patton et al., 2015). The primary data source consisted of written reflection reports submitted after participants completed their research projects. A total of 11 written reflection reports were analyzed, with each report individually written and submitted by one representative from each research group. The reflection reports documented participants' experiences, challenges, ethical considerations, perceived support and each reflection report took approximately 30–45 minutes to complete. The

reports were submitted after the completion of the classroom research activities, allowing participants to reflect on their experiences throughout the research process.

Before data collection, participants were informed about the purpose of the study and agreed that their reflection reports would be used for research purposes. Participation was voluntary, and all identifying information was removed to ensure anonymity and confidentiality in accordance with ethical principles for educational research (Creswell & Poth, 2016). The data were analyzed using (Byrne, 2022) thematic analysis. The analysis involved six stages: (1) familiarizing with the data through repeated reading of the reflection reports, (2) generating initial codes, (3) organizing similar codes into categories, (4) developing preliminary themes, (5) reviewing and refining the themes to ensure coherence and consistency, and (6) defining and reporting the final themes in relation to the research questions.

To enhance the credibility of the thematic analysis, the researchers repeatedly reviewed the codes and emerging themes against the original reflection reports and discussed discrepancies until agreement was reached to ensure that the themes accurately represented the participants' experiences. The researchers also discussed and reviewed the emerging themes to ensure consistency between the data, codes, and final themes.

3. Findings and Discussion

The thematic analysis identified three major themes describing pre-service teachers' experiences in conducting classroom research: (1) challenges experienced during classroom research, (2) understanding of research ethics, and (3) perceived support throughout the research process. These themes emerged consistently across participants' reflection reports and illustrate how classroom research shaped their learning experiences from the initial planning stage to the completion of the research project. Across the 11 reflection reports, the findings showed a consistent pattern: participants experienced classroom research as challenging but meaningful, developed awareness of ethical responsibilities through practical research activities, and relied on academic, peer, and technological support to manage difficulties throughout the research process.

Theme 1. Challenges Experienced During Classroom Research

Participants described classroom research as a demanding yet meaningful learning experience. Although the nature of the challenges differed according to the type of research conducted, nearly all participants reported experiencing difficulties throughout the research process. The findings revealed four main categories of challenges: emotional responses, methodological issues, data collection, and academic writing. Overall, the pattern indicates that challenges occurred across multiple stages of the research process, with emotional difficulties appearing particularly during the initial stage and methodological, data-related, and writing difficulties continuing throughout the project.

Emotional challenges were particularly evident during the initial stage of the research. Many participants explained that conducting research for the first time created feelings of uncertainty because they had limited previous experience in designing and implementing research projects. Feelings of confusion, anxiety, and self-doubt frequently appeared as participants attempted to determine appropriate research topics, formulate research questions, and understand research procedures. One participant expressed these feelings by stating, "I felt confused, anxious, and even experienced panic attacks when starting the research." Other participants described mixed emotions, explaining that although they were excited to conduct their first classroom research project, they were also worried about whether they would be able to complete it successfully. These reflections indicate that classroom research was perceived as both an opportunity for learning and a challenging academic responsibility.

Methodological challenges also emerged throughout the research process. Participants conducting document analysis reported difficulties in identifying textbooks that met the research criteria, particularly materials aligned with the Indonesian Curriculum Merdeka and containing appropriate cultural content. Participants using interviews explained that obtaining detailed responses from interviewees was often difficult because some participants answered questions briefly, requiring additional probing questions to gather richer information. Similarly, participants conducting grammar analysis described challenges in identifying, classifying, and calculating grammatical errors because they needed to ensure the accuracy and consistency of their analysis. These experiences demonstrate that different research designs presented different methodological difficulties that required participants to adapt their research strategies.

Data collection and data management were also reported as challenging aspects of classroom research. Some participants explained that arranging interview schedules with participants required flexibility because of differences in availability. Others experienced difficulties organizing large amounts of qualitative data before beginning the analysis process. Participants conducting document analysis needed to review multiple learning materials before selecting those that matched the research objectives, while those analyzing students' written work spent considerable time categorizing language errors into appropriate grammatical classifications. These findings suggest that collecting and organizing research data required patience, careful planning, and attention to detail.

Academic writing represented another major challenge identified by participants. Writing the journal article required them to search for relevant literature, synthesize previous studies, organize the manuscript according to academic conventions, and revise their work repeatedly. One participant explained, "The most challenging process was

writing and organizing the journal structure because I had to search and read journals one by one.” Although some participants used artificial intelligence tools to assist with grammar checking or idea development, they emphasized that they still needed to evaluate references critically and revise their writing independently. Overall, the findings demonstrate that classroom research required participants to develop not only methodological competence but also academic writing skills and perseverance throughout the research process.

Theme 2. Understanding of Research Ethics

The second theme focused on participants' understanding and implementation of research ethics during classroom research. Across the reflection reports, participants demonstrated awareness of several fundamental ethical principles, including transparency, informed consent, confidentiality, anonymity, and responsible data management. Although the application of these principles differed according to the research design, participants consistently emphasized the importance of protecting participants' rights and maintaining research integrity. The overall pattern suggests that ethical awareness was demonstrated through concrete research practices rather than only through participants' theoretical understanding of research ethics. Participants conducting document analysis highlighted transparency by ensuring that all learning materials used in the study were properly identified and accurately cited. They explained that complete bibliographic information was included to acknowledge the original sources and to avoid plagiarism. Participants regarded accurate citation practices as an important component of ethical research because they reflected honesty and academic responsibility.

Participants conducting interview-based research placed greater emphasis on informed consent and confidentiality. Before collecting data, they informed participants about the purpose of the study and requested permission to conduct and record the interviews. One participant explained, “We used pseudonyms, requested permission before recording, and deleted the audio files after transcription.” Participants also explained that interview recordings were stored only during the analysis process and were removed after the completion of the study to protect participants' privacy. Similarly, participants conducting grammar analysis demonstrated ethical awareness by protecting students' identities. Instead of reporting participants' real names, they used anonymous labels such as Student 1, Student 2, and Student 3 in both the data analysis and the research report. Participants believed that anonymity was essential because it prevented readers from identifying individual students while allowing the research findings to be presented accurately. The findings indicate that participants viewed research ethics as an integral component of classroom research rather than merely an administrative requirement. Their reflection reports consistently showed efforts to respect participants' rights, maintain confidentiality, and manage research data responsibly throughout the research process.

Theme 3. Perceived Support During Classroom Research

Participants identified several forms of support that contributed to the successful completion of their classroom research projects. Three major sources of support emerged from the data: academic supervision, peer collaboration, and technological assistance. Across the reflection reports, academic supervision emerged as the most prominent source of support, while peer collaboration and technological assistance provided additional practical and academic support throughout the research process.

Academic supervision was the most frequently mentioned source of support. Participants consistently acknowledged that lecturers provided guidance throughout different stages of the research process, including refining research topics, selecting theoretical frameworks, identifying relevant literature, improving research instruments, and providing constructive feedback on manuscript revisions. One participant stated, “The lecturer helped us find difficult journal articles, theories, and research frameworks.” Participants explained that regular consultations increased their confidence and enabled them to solve methodological problems more effectively.

Peer collaboration also played an important role in supporting participants' learning. Participants reported that working collaboratively allowed them to divide research tasks according to individual strengths, discuss methodological problems, exchange ideas, and review one another's work before submission. Effective communication among group members was considered essential for maintaining progress and ensuring that research activities were completed on schedule. Several participants also noted that collaborative discussions reduced stress because research problems could be solved collectively rather than individually.

Technological assistance, particularly through artificial intelligence applications such as ChatGPT and Claude, emerged as another important source of support. Participants explained that these tools were used to generate ideas, improve academic writing, develop interview questions, search for theoretical references, and clarify research concepts. Nevertheless, participants consistently emphasized that artificial intelligence functioned only as a supporting resource. They believed that final decisions regarding data interpretation, writing quality, and research conclusions remained the responsibility of the researchers. These reflections indicate that participants viewed technology as a complementary learning resource rather than a substitute for independent thinking.

Taken together, the findings demonstrate that successful classroom research depended not only on participants' individual efforts but also on the availability of effective supervision, collaborative learning environments, and

appropriate technological support. These forms of support enabled participants to overcome challenges encountered throughout the research process while strengthening their confidence and research competence.

This study explored pre-service teachers' experiences in conducting classroom research by examining the challenges they encountered, their understanding of research ethics, and the support they perceived throughout the research process. The findings demonstrate that classroom research represents more than an academic assignment; it serves as an authentic learning experience that enables pre-service teachers to develop research competence, reflective thinking, ethical awareness, and professional identity (Nurhidayah & Wirza, 2024; Subekti, 2020). The participants' reflection reports illustrate that learning occurred through direct engagement with real research activities, where they were required to solve practical problems, evaluate their own decisions, and continuously improve their work. These findings further reinforce the importance of structured reflection in fostering continuous professional development (E. Amalia, 2022). This finding is consistent with previous studies on Indonesian pre-service teachers, which emphasize that reflective engagement with authentic teaching and research experiences strengthens professional learning and identity development (Satrianno et al., 2024). Experiential Learning Theory (Kolb et al., 2014) argues that meaningful learning develops through concrete experience followed by reflection, conceptualization, and experimentation. Emphasizing that professional competence is strengthened when individuals critically reflect on their experiences (Visser, 2010).

The first theme revealed that participants experienced emotional, methodological, data management, and academic writing challenges throughout the research process. Emotional responses such as confusion, anxiety, uncertainty, and lack of confidence were particularly evident during the initial stages of conducting classroom research. Since most participants had limited previous research experience, they often questioned whether they had selected appropriate research topics, methods, and procedures (Indah & Kasih, 2023; Ramdani et al., 2023). Rather than indicating failure, these emotional responses can be viewed as a natural part of the learning process because novice researchers are required to apply theoretical knowledge in authentic educational settings for the first time. Through repeated reflection and problem-solving, participants gradually developed greater confidence in completing their research projects (Fazalani et al., 2024; Situmorang et al., 2024). This progression also reflects the role of metacognitive regulation in helping novice researchers monitor their understanding, evaluate research decisions, and adjust strategies throughout the inquiry process (Muhid et al., 2020). Proposition that challenges learning experiences encourage deeper understanding through reflection and continuous improvement (Kolb et al., 2014).

Methodological challenges constituted another important aspect of participants' experiences. Difficulties in selecting research materials, collecting sufficient data, conducting interviews, classifying grammatical errors, and organizing research findings indicate that applying research methodology is considerably more demanding than understanding research concepts theoretically (Rahmah et al., 2025; Ramdani et al., 2023). These findings are consistent with previous studies showing that pre-service teachers frequently experience uncertainty when implementing research procedures because of limited practical experience (Admiraal et al., 2017; Rohimah et al., 2026; Wardana, 2024; Williams & Sembianti, 2022). The findings therefore suggest that teacher education programs should continue providing authentic research opportunities that enable students to translate methodological knowledge into practical research skills. Repeated exposure to research activities may gradually strengthen students' confidence and competence as educational researchers (Situmorang et al., 2024; Subekti, 2020).

Academic writing also emerged as one of the most demanding components of classroom research. Participants reported spending considerable time searching for relevant literature, synthesizing previous studies, organizing journal sections, and revising their manuscripts to meet academic standards (Mulyaningsih et al., 2024; Subekti, 2020). Although these activities were perceived as challenging, they also encouraged participants to become more familiar with academic conventions and scholarly communication. This finding suggests that academic writing should not be viewed merely as the final stage of reporting research but as an integral component of the research learning process itself. Through writing, participants reflected on their findings, organized their ideas systematically, and transformed practical experiences into academic knowledge (Nurjati et al., 2025; Suaib, 2021). This interpretation perspective that reflection enables professionals to construct new knowledge from their own experiences (Visser, 2010).

The second theme demonstrated that participants possessed a satisfactory understanding of fundamental research ethics, including informed consent, confidentiality, anonymity, transparency, and responsible data management. More importantly, participants described concrete actions demonstrating the application of these ethical principles during their research projects. For example, they obtained participants' permission before interviews, protected personal identities by using pseudonyms or anonymous labels, accurately acknowledged research sources, and managed research data responsibly (Drajati et al., 2023; Yumasdaleni et al., 2026). These findings indicate that participants understood research ethics not only conceptually but also practically through their research experiences.

Another noteworthy finding concerns participants' perception that ethical competence developed through authentic practice rather than classroom instruction alone. While research methodology courses introduced ethical principles theoretically, participants reported that conducting actual research enabled them to understand how these principles should be implemented in real educational contexts (Drajati et al., 2023; Hartaty & Gunawan, 2024). Making decisions about participant confidentiality, managing interview recordings, and ensuring transparency required participants to apply ethical reasoning during the research process. This finding indicates that experiential learning

contributes not only to methodological competence but also to the development of ethical responsibility, which is an essential characteristic of professional educators (Nasir et al., 2024).

The third theme highlighted the important role of academic supervision, peer collaboration, and technological assistance throughout the research process. Academic supervision emerged as the primary source of support because lecturers guided participants in selecting research topics, identifying theoretical frameworks, locating relevant literature, refining research instruments, and revising research reports (Nangimah & Walldén, 2023; Yusuf et al., 2017). Continuous feedback enabled participants to solve methodological problems and maintain confidence throughout the research process. These findings reinforce previous research suggesting that effective supervision contributes significantly to the development of research competence among pre-service teachers by providing both academic guidance and emotional encouragement (Eyüboğlu, 2024; Hamiddin et al., 2026).

Peer collaboration also played a significant role in participants' learning experiences. Working collaboratively enabled participants to exchange ideas, discuss methodological issues, divide research responsibilities, and provide mutual encouragement when facing research difficulties (Priyambodo & Wilujeng, 2023; Ridwan & Athena, 2023). Collaborative learning created opportunities for participants to learn from one another while developing communication, teamwork, and problem-solving skills. These findings suggest that classroom research not only develops individual competence but also promotes collaborative professional learning, an important characteristic of effective teacher education (Lehtinen et al., 2023).

An additional finding concerns the growing role of artificial intelligence in supporting classroom research. Participants frequently reported using AI applications such as ChatGPT and Claude to improve academic writing, generate research ideas, identify relevant theories, and clarify methodological concepts (Farrokhnia et al., 2024; Syairofi et al., 2025). This finding is consistent with (Ramadhani et al., 2026) who argue that AI should function as a pedagogical assistant that supports pre-service teachers' academic work while preserving learners' critical thinking, pedagogical reasoning, and independent decision-making. However, participants consistently emphasized that these technologies functioned only as supporting tools and should not replace independent thinking, critical evaluation, or personal responsibility for research decisions (Fakhri & Pirmansyah, 2025; Holmes & Miao, 2023; Ramadhani et al., 2026). Similar arguments have been made by (E. R. Amalia, 2026) who emphasizes that artificial intelligence should enhance reflective learning and pedagogical practice rather than replace teachers' professional judgement. This balanced perspective indicates that participants recognized both the benefits and limitations of artificial intelligence within academic research. The findings therefore suggest that teacher education programs should incorporate digital literacy and responsible AI use into research methodology instruction so that future teachers are prepared to utilize technological innovations ethically while maintaining academic integrity.

The findings demonstrate that classroom research provides a comprehensive learning experience through which pre-service teachers develop methodological competence, ethical awareness, reflective thinking, academic writing ability, and collaborative skills (Hartaty & Gunawan, 2024; Rahmah et al., 2025; Rohimah et al., 2026; Suaib, 2021). More importantly, this study contributes to the literature by bringing together three dimensions that have often been examined separately: challenges, research ethics, and academic support. By examining these dimensions together, the study provides a more holistic understanding of pre-service teachers' classroom research experiences. The findings suggest that these dimensions are interconnected: challenges shape students' learning experiences, ethical awareness develops through engagement with authentic research situations, and academic, peer, and technological support helps students navigate these challenges responsibly. Importantly, although participants encountered various challenges throughout the research process, these challenges ultimately became opportunities for professional learning when supported by effective supervision, collaborative peer interaction, and responsible technological assistance (Holmes & Miao, 2023; Liu et al., 2025; Yuan, 2024). Consequently, teacher education programs should continue strengthening classroom research experiences by integrating authentic research practice, structured supervision, explicit ethics instruction, academic writing support, and guidance on the responsible use of emerging technologies. Such improvements may better prepare future teachers to become reflective practitioners who are capable of conducting educational research that is methodologically rigorous, ethically responsible, and relevant to improving teaching and learning.

4. Conclusion

This study explored pre-service teachers' experiences in conducting classroom research by examining the challenges they encountered, their understanding of research ethics, and the support they perceived throughout the research process. The findings indicate that classroom research serves as a valuable learning experience that fosters research competence, reflective thinking, and professional development despite the emotional, methodological, and academic writing challenges faced by novice researchers. Participants also demonstrated an understanding of fundamental research ethics and recognized the importance of applying ethical principles throughout the research process. Furthermore, academic supervision, peer collaboration, and the responsible use of artificial intelligence emerged as important sources of support that facilitated the successful completion of classroom research. These findings highlight the need for teacher education programs to strengthen research methodology instruction through authentic research experiences, continuous academic supervision, explicit ethics education, and guidance on the responsible use of emerging

technologies. Although this study was conducted within a single teacher education program with a limited number of participants, it provides useful insights for improving research training, and future studies involving broader educational contexts are recommended to enhance the understanding of pre-service teachers' classroom research experiences.

5. References

- Admiraal, W., Louws, M., Lockhorst, D., Paas, T., Buynsters, M., Cviko, A., Janssen, C., de Jonge, M., Nouwens, S., & Post, L. (2017). Teachers in school-based technology innovations: A typology of their beliefs on teaching and technology. *Computers & Education*, 114, 57–68.
- Amalia, E. (2022). Reflections on the Teaching and Learning During and Post COVID-19 Pandemic. *Resilience in Language Teaching and Learning in the New Normal*, 1, 13–22.
https://www.researchgate.net/publication/362717394_Reflections_on_the_Teaching_and_Learning_during_and_post_Covid-19_Pandemic
- Amalia, E. R. (2026). *AI in ELT: Teacher Agency and Classroom Practices*.
https://www.researchgate.net/publication/404723053_AI_in_ELT_Teacher_Agency_and_Classroom_Practices
- Antoninis, M., Alcott, B., Al Hadheri, S., April, D., Fouad Barakat, B., Barrios Rivera, M., Baskakova, Y., Barry, M., Bekkouche, Y., & Caro Vasquez, D. (2023). *Global Education Monitoring Report 2023: Technology in education: A tool on whose terms?*
- Boud, D., & Dawson, P. (2023). What feedback literate teachers do: An empirically-derived competency framework. *Assessment & Evaluation in Higher Education*, 48(2), 158–171.
- Byrne, D. (2022). A worked example of Braun and Clarke's approach to reflexive thematic analysis. *Quality & Quantity*, 56(3), 1391–1412.
- Cochran-Smith, M., & Lytle, S. L. (1999). The teacher research movement: A decade later. *Educational Researcher*, 28(7), 15–25.
- Creswell, J. W., & Poth, C. N. (2016). *Qualitative inquiry and research design: Choosing among five approaches*. Sage publications.
- Drajati, N. A., Trinugraha, Y. H., Sukmawati, F., RAKERDA, H., & Ilmi, M. (2023). Research ethics in social studies: Indonesian perspectives. *Jurnal Inovasi Pengabdian Masyarakat Pendidikan*, 4(1), 123–137.
- Eyüboğlu, I. S. K. (2024). Comparing the feedback of university supervisor and cooperating teachers for preservice science teachers within the scope of pedagogical content knowledge. *Journal of Theoretical Educational Sciences*, 17(1), 145–168.
- Fakhri, M. F., & Pirmansyah, R. (2025). Educators' Perceptions of AI and ChatGPT: Comfort, Ethics, and Readiness in Teaching. *Tekno-Pedagogi: Jurnal Teknologi Pendidikan*, 15(2), 144–158.
- Farrokhnia, M., Banihashem, S. K., Noroozi, O., & Wals, A. (2024). A SWOT analysis of ChatGPT: Implications for educational practice and research. *Innovations in Education and Teaching International*, 61(3), 460–474.
- Fazalani, R., Saputra, N., Desmita, N., & Ningsih, T. Z. (2024). Struggling Motivation of Three Indonesian Novice Writers in Scholarly Publication. *LLT Journal: A Journal on Language and Language Teaching*, 27(1), 531–541.
- Gilliland, B., Kunkel, M., Nguyen, T. H., Urada, K., & Christenson, C. (2023). Ethical dilemmas of teacher research in applied linguistics. *Research Methods in Applied Linguistics*, 2(3), 100072.
- Hamiddin, H., Ismiatun, F., Ilmi, Y. I. N., & Wicaksono, H. (2026). Teacher competencies and their role in promoting pre-service teachers' professional growth. *Journal of Research on English and Language Learning (J-REaLL)*, 7(1), 39–51.
- Hartaty, D. T., & Gunawan, H. (2024). Metodologi Penelitian dan Etika Keguruan. *Jurnal Ilmu Pendidikan Islam*, 22(3), 9–18.
- Holmes, W., & Miao, F. (2023). *Guidance for generative AI in education and research*. Unesco Publishing.
- Indah, R. N., & Kasih, L. (2023). *The critical inquiry of Indonesian beginner linguistic researchers: A longitudinal study*.
- Knight, J. (2023). Evaluating the impacts of a research ethics training course on university researchers. *Social Sciences*, 12(3), 182.
- Kolb, D. A., Boyatzis, R. E., & Mainemelis, C. (2014). Experiential learning theory: Previous research and new directions. In *Perspectives on thinking, learning, and cognitive styles* (pp. 227–247). Routledge.
- Kristanto, Y., & Dwikurnaningsih, Y. (2022). Schoology-based Training Module for Improving Teacher Competence in Making Classroom Action Research. *JPI (Jurnal Pendidikan Indonesia)*, 11(3), 574–584.
- Lehtinen, A., Kostianen, E., & Näykki, P. (2023). Co-construction of knowledge and socioemotional interaction in pre-service teachers' video-based online collaborative learning. *Teaching and Teacher Education*, 133, 104299.
- Liu, S., Yuan, R., & Wang, K. (2025). Explicit teaching of reflective practice (RP) in pre-service teacher education: Probing the immediate and long-term influence. *Teachers and Teaching*, 31(1), 86–103.
- Muhid, A., Amalia, E. R., Hilaliyah, H., Budiana, N., & Wajdi, M. B. N. (2020). The Effect of Metacognitive Strategies Implementation on Students' Reading Comprehension Achievement. *International Journal of Instruction*, 13(2), 847–862. <https://doi.org/https://doi.org/10.29333/iji.2020.13257a>

- Mulyaningsih, I., Azmi, N., Rochmansyah, B. N., & Priajana, N. (2024). Indonesian Language Teachers' Skills to Write Academic Articles in Reputable Journals. *Ranah: Jurnal Kajian Bahasa*, 13(1), 196–210.
- Nangimah, M., & Walldén, R. (2023). *How supervisors provide and students react to EAL thesis supervision: Voices from Sweden and Indonesia*. 8, 1118436.
- Nasir, N., Awaluddin, A., & Ashar, A. (2024). The Impact of Ethics Education on Teachers' Professional Development and Its Influence on Decision Making, Classroom Practices, and Teacher-Student Relationships. *Educia Journal*, 2(2), 63–71.
- Nasrudin, D., Rochman, C., Dirgantara, Y., Juanda, A., & Ilahi, F. (2024). The Profile of Classroom Action Research Skills Among Teachers in Indonesia: What is it Like and What Needs to be Done? *International Journal of Pedagogy and Teacher Education*, 8(1), 63–74.
- Nurhidayah, M. I., & Wirza, Y. (2024). Reflective practice in the teaching practicum program: Pre-service English teachers' reflections. *Journal of Applied Studies in Language*, 8(1), 11–20.
- Nurjati, N., Syahria, N., & Khan, A. K. B. S. (2025). ChatGPT-Based Reflective Feedback to Improve EFL Graduate Students' Academic Writing for Publication. *JOLLT Journal of Languages and Language Teaching*, 13(4), 1802–1816.
- Patton, M. Q., McKegg, K., & Wehipeihana, N. (2015). *Developmental evaluation exemplars: Principles in practice*. Guilford publications.
- Priyambodo, P., & Wilujeng, I. (2023). Phenomenological studies: Strategies for improving Indonesian pre-service teacher collaboration skills. *Pegem Journal of Education and Instruction*, 13(3), 350–361.
- Rahmah, R., Amelia, R., Alim, J., & Anggriani, M. (2025). Identifikasi Kesulitan Belajar Metodologi Penelitian Mahasiswa Pendidikan Guru Sekolah Dasar. *Jurnal Mahasiswa: Jurnal Ilmiah Penalaran Dan Penelitian Mahasiswa*, 7(3), 30–43.
- Ramadhani, P., Amalia, E. R., & Kusriani, N. A. R. (2026). Integrating AI-TPACK for Pre-Service Teachers: Applications and Challenges in English Language Program. *Journal of Nusantara Education*, 5(2), 125–135. <https://doi.org/https://doi.org/10.57176/jn.v5i2.207>
- Ramdani, Y., Syam, N. K., Karyana, Y., & Herawati, D. (2023). Problem-based learning in research method courses: Development, application and evaluation. *F1000Research*, 11, 378.
- Ridwan, A., & Athena, T. (2023). Professional development altogether: Pre-service and in-service EFL teacher collaboration in doing classroom action research. *Elsya: Journal of English Language Studies*, 5(2), 147–158.
- Rohimah, S. M., Putri, S. A., & Helsa, Y. (2026). Conceptual and procedural errors of pre-service elementary teachers in solving educational research statistics problems. *Jurnal Elemen*, 12(1), 49–65.
- Satrianno, I. S., Harsqy, H. N., & Anjani, K. S. (2024). Pre-Service Teachers' Reflective Practice in Kampus Mengajar Program (Lesson Learned in Indonesia Primary Schools). *UICELE*, 1(01).
- Siregar, N., Lestari, N., Yarshal, D., Fitria, D., & Harahap, Y. S. (2025). Classroom Action Research Investigation Conducted by Pre-Service Teachers Education Program. *Jurnal Ilmiah Pendidikan Profesi Guru*, 8(1), 163–175. <https://doi.org/https://doi.org/10.23887/jippg.v8i1.75903>
- Situmorang, H. N., Panggabean, F. T. M., & Situmorang, M. (2024). Action research with projects to facilitate students to study research and prepare research proposals during the Covid-19 pandemic. *Educational Action Research*, 32(2), 186–203.
- Suaib, N. R. A. (2021). The Phenomenon of Pre-Service Teachers' Reflective Writing: A Literature Review. *Journal of Education and Teaching (JET)*, 2(2), 178–190.
- Subekti, A. S. (2020). Undergraduate Novice Researchers'™ Experiences in Conducting Mini-Research in Education: Kolb Learning Cycle. *Indonesian Research Journal in Education| IRJE|*, 448–465.
- Syairofi, A., Emilia, E., & Purnawarman, P. (2025). The use of ChatGPT in the Indonesian ELT context: A systematic review. *Journal of Research on English and Language Learning (J-REaLL)*, 6(2), 217–234.
- Tammeleht, A., & Löfström, E. (2024). Learners' self-assessment as a measure to evaluate the effectiveness of research ethics and integrity training: Can we rely on self-reports? *Ethics & Behavior*, 34(8), 575–596.
- Tulung, J. M., Waney, M., Mailool, J., Rogahang, H. J., Weol, W., & Wuwung, O. (2022). Teachers' Difficulties in Implementing Classroom Action Research: Experiences of Elementary School Teachers. *Cypriot Journal of Educational Sciences*, 17(6), 1957–1971.
- Visser, W. (2010). Schön: Design as a reflective practice. *Collection*, (2), 21–25.
- Wardana, I. K. (2024). Teaching english through UbD: Challenges of Indonesian pre-service teachers. *Jo-ELT (Journal of English Language Teaching) Fakultas Pendidikan Bahasa & Seni Prodi Pendidikan Bahasa Inggris IKIP*, 11(2), 170–183.
- Williams, L., & Sembiente, S. F. (2022). Experiential learning in US undergraduate teacher preparation programs: A review of the literature. *Teaching and Teacher Education*, 112, 103630.
- Yuan, R. (2024). Maximizing the potential of reflective practice in pre-service language teacher education: The issue of authenticity. *RELC Journal*, 55(3), 835–846.
- Yumasdaleni, Kustini, Sofanudin, A., Wahab, A. J., Zuhrah, F., Atieqoh, S., & Warnis. (2026). Navigating Ethical Dilemmas in Qualitative Research with Vulnerable Groups in Indonesia. *Journal of Empirical Research on Human Research Ethics*, 21(3), 148–160.

Yusuf, F. N., Widiati, U., & Sulistyono, T. (2017). Multimodal feedback provision in improving pre-service teachers' competence. *Indonesian Journal of Applied Linguistics*, 7(2), 239–246.