The Effectiveness Of The Formation Of Reflective And Research Competencies Of Future Teachers-Psychologists In The Context Of Inclusive Education In Kazakhstan.

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Abstract

This study aims to examine the effectiveness of a structured intervention in developing reflective and research competencies among future teacher-psychologists in inclusive education contexts. An explanatory sequential mixed-methods design was employed, involving 120 pre-service teacher-psychologists from three pedagogical universities in Kazakhstan. Quantitative data were collected using the Reflective Competence Questionnaire (RCQ) and the Research Competence Diagnostic Tool (RCDT), while qualitative data were obtained through reflective journals, semi-structured interviews, and mentor observations. The results revealed statistically significant improvements in both competencies following the intervention. Reflective competence scores increased from $M = 3.12$ ($SD = 0.41$) to $M = 3.76$ ($SD = 0.38$), $t(119) = 11.23$, $p < .001$, with a moderate-to-large effect size ($d = 0.72$). Research competence scores improved from $M = 10.4$ ($SD = 2.8$) to $M = 14.9$ ($SD = 2.5$), $t(119) = 13.76$, $p < .001$, indicating a strong effect ($d = 0.85$). Qualitative findings supported these results, highlighting enhanced self-awareness, pedagogical adaptability, ethical reflection, and research engagement among participants. The study contributes to teacher education by providing empirical evidence for the effectiveness of integrating reflective practices and research-based learning within pre-service training. It proposes a practical framework for preparing reflective and research-oriented teacher-psychologists capable of addressing the diverse needs of learners in inclusive classrooms.

Keywords: Inclusive Education, Reflective Competence, Research Competence, Teacher-Psychologists, Professional Training, Pedagogical Strategies, Pre-Service Education.

1. Introduction

The international trend of inclusive education in recent decades has had a great impact on the training and professional requirements of teachers, especially those ones specializing in psychological and pedagogical support (Duzelbayeva et al., 2025). The concept of inclusive education underlines the necessity to support the inclusion of diverse students, such as those with disabilities, learning and social or emotional obstacles in the mainstream educational setting (Qusef et al., 2025). Consequently, future teacher-psychologists should not only be provided with theoretical knowledge and practical competencies, but also with well-developed reflective and research competencies, which will allow them to respond to the complexity of the inclusive classroom (Asylbekova et al., 2023).

Reflective competence is the ability of a person to critically examine his/her professional experiences, assess pedagogical choices, and take part in the process of an unceasing self-development (Каирбаева & Тлеубай, 2024). Reflection, in the context of inclusive education provides teacher-psychologists with insight into the needs of various learners, challenges their own biases, and adjust their own ways of responding to them. Likewise,

research competence will enable future professionals to explore educational issues in the real world, implement evidence-based practices, and enhance the creation of inclusive methods (Moriña & Perera, 2025).

Although reflective and research competencies are widely recognized as essential in teacher education, existing studies largely focus on their theoretical importance rather than providing empirically tested models for their integrated development within pre-service training programs (Martinez, 2022). There is a lack of research examining how structured, practice-based interventions can simultaneously foster both competencies in the specific context of inclusive education. Furthermore, limited evidence exists on the effectiveness of combining reflective practices with research-based learning and evaluating their impact using standardized measurement tools.

To address this gap, the present study investigates the effectiveness of a structured intervention that integrates reflective activities and research-based tasks within pre-service teacher education. Using a mixed-methods approach, the study provides empirical evidence on how these competencies can be systematically developed and applied by future teacher-psychologists in inclusive school settings.

Investigating the theoretical frameworks, studying best practices, and providing empirical evidence of teacher education programs, this study will provide practical recommendations to improve the preparation of reflective and research-oriented teacher-psychologists. Lastly, the study highlights the importance of the competencies in promoting the spirit of inclusiveness and professional flexibility in contemporary education settings.

Modern education has transformed the roles and responsibilities of educators, particularly those involved in psychological and pedagogical support, as systems increasingly adopt inclusive approaches (Bessarab et al., 2023). Inclusive education, grounded in principles of equality, equity, and social justice, requires that all learners regardless of ability, background, or needs are provided meaningful learning opportunities within mainstream settings (Sharma & Gill, 2024). This shift places significant demands on teacher education institutions to prepare professionals capable of addressing diverse and complex learner needs. Future teacher-psychologists play a critical role in this process, as they bridge educational policy, instructional practice, and the psychosocial realities of inclusive classrooms.

However, unlike prior studies that examine reflective or research competencies in isolation or at a theoretical level, this study introduces and empirically tests an integrated, practice-based intervention that simultaneously develops both competencies within inclusive education settings. By combining structured reflective practices with action research activities and evaluating their impact through standardized tools (RCQ and RCDT), the study provides a comprehensive and evidence-based framework for preparing teacher-psychologists for inclusive practice.

Future teacher-psychologists require competencies that extend beyond theoretical knowledge to effectively respond to the complexities of inclusive education. Among these, reflective and research competencies are particularly critical, as they enable practitioners to critically evaluate their practice, adapt to diverse learner needs, and apply evidence-based solutions in real classroom contexts. Rather than treating these competencies as separate domains, their integration is essential for developing adaptive, ethically grounded, and inquiry-oriented professionals.

Building on this premise, the present study moves beyond descriptive and theoretical discussions by empirically examining how these competencies can be developed simultaneously through a structured, practice-based intervention. By integrating reflective activities with research-oriented tasks and assessing their impact using standardized instruments, the study offers a coherent and evidence-based model for strengthening professional preparation in inclusive education.

2. Literature Review

The development of reflective and research competencies among future teacher-psychologists, particularly within the context of inclusive education, has gained increasing attention in both international and Kazakh academic discourse. As Kazakhstan advances its educational reforms in alignment with global standards, the training of inclusive education specialists has become a strategic national priority, particularly through curriculum adaptation aimed at enhancing professional competencies (Rawashdeh & Idris, 2025).

2.1. Reflective Competence in Inclusive Education: International and Kazakh Perspectives

Globally, the theoretical foundation of reflective competence is deeply influenced by scholars such as Dewey (1933), who described reflection as an active, persistent, and careful consideration of beliefs and knowledge. Schön (1983) further emphasized "reflection-in-action" and "reflection-on-action" as essential components of professional learning. These concepts have significantly shaped teacher education models worldwide, leading to the integration of reflective practices such as journaling, self-assessment, and portfolio development.

In the Kazakh context, reflective practice is increasingly being incorporated into pedagogical training. Researchers such as K. Nurgaliyeva, S. A. Assanova, and G. K. Nurzhanova have explored the integration of reflection into teacher education curricula. Nurgaliyeva (2021) highlights that reflection enables future psychologists to evaluate their professional values and understand the socio-cultural factors influencing inclusive practices in Kazakhstan. Assanova (2020) argues that reflective competence plays a critical role in addressing internalized biases toward students with disabilities, particularly in rural schools where traditional attitudes may persist.

Nurzhanova (2022) developed a structured framework for reflective training that includes role-playing, case analysis, and self-observation techniques. Her research, conducted across several pedagogical universities in Kazakhstan, demonstrated that students engaged in systematic reflective practices reported increased empathy, confidence, and adaptability when dealing with inclusive classroom scenarios.

2.2. Research Competence in Teacher-Psychologist Training

Internationally, research competence is regarded as fundamental to evidence-based teaching and professional autonomy (Cochran-Smith & Lytle, 2009; Munthe & Rogne, 2015). Moreover, emerging studies also highlight the role of artificial intelligence in enhancing research-oriented learning and instructional methods (Al-Billeh et al., 2025). It equips educators with the ability to diagnose learning needs, evaluate educational interventions, and contribute to institutional development through informed decision-making.

In Kazakhstan, the shift toward research-oriented teacher education has been supported by national initiatives such as the State Program for the Development of Education and Science (2020–2025). According to Mambetova (2020), integrating foundational research methods into bachelor-level programs for teacher-psychologists remains challenging due to limited faculty training and insufficient opportunities for practical research engagement. Nevertheless, pilot programs implemented in collaboration with Nazarbayev University and the National Scientific and Practical Center for Inclusive Education have shown promising results.

Yessimova (2021) emphasizes that the development of research competence should begin with students' active involvement in action research and school-based projects. Her findings highlight the effectiveness of engaging students in small-scale inquiries related to classroom behavior management, differentiated instruction, and the adaptation of psychological assessment tools for children with special educational needs (SEN).

2.3. The Interrelation of Reflective and Research Competencies

Kazakh scholars increasingly recognize the interdependence of reflective and research competencies in the preparation of inclusive education professionals. Zhumanova (2022) argues that reflection without research may become subjective and anecdotal, whereas research without reflection risks lacking practical relevance and ethical depth. She advocates for integrated training models that combine analytical thinking, systematic observation, and personal introspection.

3. Methodology

3.1. Research Design

The study employed an explanatory sequential mixed-methods design, combining quantitative and qualitative approaches to obtain a comprehensive understanding of the development of reflective and research competencies among future teacher-psychologists in inclusive education contexts. The quantitative phase focused on measuring changes in competency levels before and after the implementation of a structured educational intervention, while the qualitative phase explored students' reflective experiences, perceptions, and contextual factors influencing their professional development. This design enabled the integration and interpretation of quantitative findings through in-depth qualitative insights.

The intervention was applied uniformly to all participants, and no separate control or comparison group was included. Instead, a one-group pre-test–post-test design was used to assess changes in competencies over time.

While this approach limits causal generalization, it allows for a focused examination of developmental trends associated with the intervention within an authentic educational setting.

3.2. Participants and Sampling

A total of 120 students (93 females and 27 males), aged 20–29 years, were enrolled in bachelor's and master's degree programs in teacher-psychology at three pedagogical universities in Kazakhstan. A purposive sampling strategy was employed to ensure the inclusion of participants with relevant academic backgrounds and practical exposure to inclusive education (Alkayed et al., 2023). Specifically, the sample comprised third- and fourth-year bachelor's students and first-year master's students who had completed at least one course in inclusive education or research methodology and had prior practicum or internship experience in inclusive school settings. This approach was appropriate for the study, as it targeted participants who were most likely to meaningfully engage with reflective and research-based interventions.

The sample included 80 bachelor's and 40 master's students, allowing for comparison across different levels of academic preparation. In addition, 12 faculty members and 5 school-based mentors contributed observational data and evaluative feedback on student performance during practicum activities.

The sample size of 120 participants was considered adequate for the quantitative component of the study, particularly for paired-sample statistical analyses, where this number provides sufficient statistical power to detect medium to large effect sizes. Furthermore, the inclusion of multiple institutions enhanced the diversity and representativeness of the sample within the specific context of teacher-psychologist training in Kazakhstan. For the qualitative component, a subset of participants was selected to ensure depth and variation in perspectives, supporting comprehensive thematic analysis.

Figure 1. Participating universities included in the study on the development of reflective and research competencies among future teacher-psychologists in Kazakhstan.

3.3. Instruments and Data Collection Tools.

A mixture of qualitative and standardized instruments were used in data collection. The Reflective Competence Questionnaire (RCQ) was used to measure reflective competence and was based on the Reflective Thinking Survey (developed by Larrivee) and adapted and localised to the Kazakhstani environment. The survey was used to gauge essential aspects of reflective competence, such as self-awareness, critical reflection, ethical reasoning, and professional development.

Figure 2 presents the core dimensions of reflective competence evaluated in this study. It demonstrates that reflective competence extends beyond self-assessment to include ethical reasoning, responsiveness to diverse learners, and informed decision-making. These dimensions directly informed both the measurement (RCQ) and the structure of the intervention, emphasizing the comprehensive nature of reflective development required for effective practice in inclusive classrooms.

Figure 2. Key dimensions of reflective competence development among students.

The competence of research was assessed through Research Competence Diagnostic Tool (RCDT) which was created in partnership with faculty of Nazarbayev University. This tool evaluated the knowledge and practice of the students in terms of research methods, research design, data collection, data analysis and interpretation of results.

Figure 3. Structure of research competence development, illustrating key stages from problem identification to data interpretation and application in inclusive practice.

Figure 3 illustrates the main components of research competence evaluated in this study. It shows that research competence involves a sequence of interconnected skills, starting from problem formulation to data interpretation and application in inclusive practice. These components guided both the design of the Research Competence Diagnostic Tool (RCDT) and the structure of research-based activities implemented during the intervention.

Besides these tools, qualitative data were gathered using reflective journals, semi-structured interview and evaluation based on observation. In the practicum, students kept weekly reflective journals, keeping a record of their observations, emotional reactions, challenges and strategies they employed in their work with children of special educational needs. Semi structured interviews were undertaken with 20 volunteer participants who were chosen with the aim of making sure that there was diversity in terms of performance in academics, gender and geographical backgrounds. The interviews covered personal and professional growth as well as the challenges encountered by students in the process of inclusion and how they viewed the importance of reflective and research-based activities. Moreover, university supervisors and school mentors applied structured rubrics to assess how students applied reflective strategies and research skills in their practicum.

3.4. Procedure

The study was conducted over two academic semesters (16 weeks each) during one academic year and consisted of three sequential phases.

Phase 1: Baseline Assessment (Weeks 1–2)

At the beginning of the fall semester, all participants completed the Reflective Competence Questionnaire (RCQ) and the Research Competence Diagnostic Tool (RCDT) to establish baseline levels of reflective and research competencies. Participants were also oriented regarding the study objectives, intervention requirements, ethical considerations, and expectations during practicum activities.

Phase 2: Intervention Implementation (Weeks 3–28)

The intervention was integrated into participants' regular coursework and teaching practicum and was implemented uniformly for all 120 participants over a period of 26 weeks.

The reflective component included:

- Weekly reflective journals (one entry per week; total = 24 entries per student) focused on classroom observations, emotional responses, challenges, and professional learning experiences.
- Bi-weekly critical incident analysis sessions (12 sessions total), where students analysed real classroom situations involving learners with special educational needs.
- Monthly peer reflection discussions (6 sessions total), conducted in small groups under faculty supervision.
- Guided reflection exercises using structured prompts designed to encourage ethical reasoning, self-awareness, and reflective decision-making.

The research competency component included:

- Three research workshops (each lasting 4 hours) covering qualitative methods, quantitative methods, and ethical data collection in inclusive education settings.
- A semester-long mini action research project, where students identified a classroom problem, developed a research question, collected classroom-based data, analysed findings, and proposed practical interventions.
- Mentor supervision meetings held twice per month with university supervisors and school-based mentors to provide feedback on both reflective and research activities.
- A student research conference presentation at the end of the intervention, where participants presented findings from their action research projects.

Phase 3: Post-Intervention Evaluation (Weeks 29–32)

At the conclusion of the spring semester, participants completed the RCQ and RCDT again to measure changes in competency development. Additionally, reflective journals were collected, semi-structured interviews were conducted with 20 participants, and mentor observation reports were compiled for qualitative analysis.

This structured timeline ensured consistency in intervention delivery while allowing students to apply reflective and research competencies in authentic inclusive classroom settings.

Figure 4. Key Components of the Structured Intervention for Developing Reflective and Research Competencies

Figure 4 illustrates the major components of the intervention implemented during the study. It demonstrates how reflective writing tasks, case analysis activities, action research projects, and peer mentorship were integrated to simultaneously strengthen students' reflective and research competencies in inclusive education

settings. The figure highlights the interconnected nature of these activities in promoting practical problem-solving, critical reflection, and professional growth.

Finally, the post-intervention data were acquired through re-testing the RCQ and RCDT. Analysis of reflective journals took place, and data on interviews and observations were compiled and transcribed to be analyzed further.

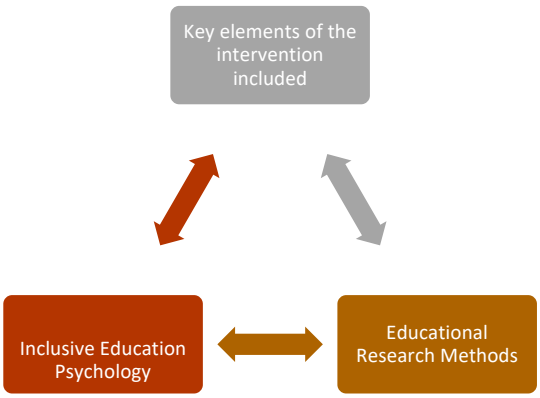

Figure 5.Timeline of Intervention Implementation and Evaluation Process.

3.5. Data Analysis

The outcome of quantitative data collected in the RCQ and RCDT was analyzed with SPSS (Version 27). Paired sample t-tests were done to find out whether statistically significant differences existed between pre-and post-intervention scores. Also, Cohen d was used to compute effect sizes to determine the extent of the observed competency levels changes.

Thematic analysis was employed to analyze qualitative data (reflective journal entries, interview transcripts, and mentor feedback) with the six phases of data analysis prescribed in Braun and Clarke (2006). NVivo software was applied to ease the coding process and to find shared themes regarding reflective thinking, inclusive education experiences, and research engagement. The study was aimed at discovering the trends of development in self-understanding, ethical choice, theory-practice transfer, and emotional stability.

The methodological triangulation was used to increase the validity of the findings to compare the data collected using questionnaires, journals, interviews, and observations.

3.6. Validity and Reliability

Cronbach alpha coefficients were used to determine the reliability of the research instruments. The Reflective Competence Questionnaire had a high internal consistency of 0.82 and the Research Competence Diagnostic tool has a reliability coefficient of 0.87. Expert review by four experts in inclusive pedagogy and educational psychology guaranteed content validity. The application of various data sources and procedures also enhanced reliability and credibility of the research findings.

3.7. Ethical Considerations

The research was undertaken following the Ethical Guidelines to Educational Research published by the Ministry of Science and Higher Education of the Republic of Kazakhstan. Informed consent was obtained by all participants before their participation in the study, and the anonymity was ensured by the anonymization of data. The participating universities provided ethical approval of the research ethics committees. The research was ethically conducted in all the data collection, analysis and reporting processes in respect of the participants and in accordance to the research process integrity.

Figure 6. Ethical Safeguards Applied During the Research Process

Figure 6 summarizes the ethical measures implemented throughout the study. It highlights the procedures used to ensure informed consent, participant confidentiality, voluntary participation, and secure data handling. These safeguards ensured that the research was conducted in accordance with institutional ethical guidelines and protected participants' rights throughout the study.

4. Results

The results are presented in two main parts: quantitative findings derived from the Reflective Competence Questionnaire (RCQ) and the Research Competence Diagnostic Tool (RCDT), and qualitative findings obtained from reflective journals, semi-structured interviews, and mentor observations. Together, these data provide a comprehensive understanding of how reflective and research competencies developed over the intervention period.

4.1. Quantitative Findings

The paired-samples t-test results presented in Table 1 indicate significant improvements in both competency domains after the intervention. Reflective competence scores increased significantly, particularly in responsiveness to diversity and reflection-in-action subdimensions. Similarly, research competence scores demonstrated substantial improvement, reflecting enhanced abilities in problem formulation, data collection, analysis, and interpretation in inclusive educational settings.

Table 1. Pre- and Post-Intervention Comparison of Reflective and Research Competencies (n = 120)

Competency Measure	Pre-test Mean	Pre-test SD	Post-test Mean	Post-test SD	t-value	p-value	Effect Size (Cohen's d)
Reflective Competence (RCQ)	3.12	0.41	3.76	0.38	11.23	< .001	0.72
Research Competence (RCDT)	10.40	2.80	14.90	2.50	13.76	< .001	0.85

Table 1 demonstrates statistically significant improvements in both reflective and research competencies following the intervention. Reflective competence showed a moderate-to-large effect size (d = 0.72), while research competence demonstrated a strong effect size (d = 0.85), indicating that the structured intervention had a meaningful impact on students' professional development.

Table 2. Distribution of Students Across Research Competency Levels Before and After Intervention

Competency Level	Pre-intervention	Post-intervention
Low	34%	6%
Moderate	56%	51%
High	10%	43%

4.2. Qualitative Findings

Qualitative data from reflective journals (n = 960 entries), semi-structured interviews (n = 20), and mentor observation reports were analysed using Braun and Clarke's (2006) six-step thematic analysis framework. Initial open coding generated 47 codes, which were subsequently grouped into 12 sub-themes and finally consolidated into four major themes related to professional competency development. Table 3 presents the coding structure and frequency of each theme.

Table 3. Major Themes Identified from Qualitative Analysis

Theme	Sub-themes	Frequency of References
Self-awareness development	Recognition of biases, emotional regulation, self-evaluation	286
Pedagogical adaptation	Instructional flexibility, communication adjustments, classroom modifications	241
Ethical reflection	Fairness, confidentiality, student autonomy	198
Professional identity formation	Confidence building, career motivation, leadership development	235

4.2.1. Reflective Journals

The analysis of 960 reflective journal entries revealed substantial growth in students' reflective thinking over time. The most frequently occurring theme was self-awareness development (286 references), where students reflected on their emotional reactions, assumptions, and biases while working with children with special educational needs (SEN).

One student stated:

"I realized that I often underestimated students with disabilities because I focused too much on their limitations. Reflection helped me recognize their strengths."

The second major theme was pedagogical adaptation (241 references), where students described modifying lesson plans, classroom communication, and behavioural strategies to better meet diverse learner needs.

A participant wrote:

"After observing one student struggling with verbal instructions, I began using visual prompts, and their participation improved significantly."

Ethical reflection (198 references) emerged as another recurring theme, particularly concerning fairness, confidentiality, and balancing support with student independence.

One journal entry noted:

"I struggled with deciding how much help to provide without making the student dependent on me."

Lastly, professional identity formation (235 references) reflected students' increasing confidence and commitment toward inclusive education careers.

A participant shared:

"I used to feel unsure around children with autism. Now, after trying new strategies and reflecting each week, I see them as learners with potential, not problems."

4.2.2. Interviews

The twenty semi-structured interviews reinforced the journal findings and provided deeper insight into students' experiences. Among interview participants:

- 16 participants (80%) identified action research as the most impactful aspect of the intervention
- 14 participants (70%) emphasized mentorship support as critical to their development
- 12 participants (60%) reported increased confidence in conducting classroom-based research
- 11 participants (55%) expressed intentions to continue research activities in their future careers

Many participants highlighted how action research helped bridge theory and practice.

One participant explained:

"Before this experience, I thought research was only for scientists. Now I see how it helps me solve real problems in class."

Another participant stated:
"The feedback from my mentor helped me reflect more deeply and improve my decisions in real classroom situations."

4.2.3. Mentor Observations

Mentor observation reports further validated students' competency development. Structured observation rubrics showed notable improvements in:

- Classroom adaptability (78% of mentors reported improvement)
- Empathy toward diverse learners (72%)
- Research-based decision-making (69%)
- Problem-solving initiative (74%)

The average mentor performance rating increased from 2.1 to 2.8 on a three-point scale over the intervention period.
One mentor commented:
"Students became more independent in identifying classroom challenges and proposing evidence-based solutions by the end of the practicum."
These findings demonstrate that qualitative evidence strongly supports the quantitative improvements observed in reflective and research competencies.

4.3. Summary of Key Findings

A comparative overview of the main outcomes indicates significant improvements across all measured domains. Reflective competence increased from a mean score of 3.12 to 3.76, representing a 21% improvement, while research competence increased from 10.4 to 14.9, corresponding to a 43% improvement. Similarly, the depth of reflective journal entries improved substantially, and mentor ratings showed a 33% increase over the intervention period.
A consolidated summary of these findings is presented in **Table 4.**

Table 4. Summary of Findings

Competency	**Pre-test Mean**	**Post-test Mean**	**Effect Size**	**Improvement**
Reflective Competence (RCQ)	3.12	3.76	d = 0.72	↑ 21%
Research Competence (RCDT)	10.4	14.9	d = 0.85	↑ 43%
Journal Depth (avg. rubric score)	1.8	2.7	–	↑ 50%
Mentor Ratings (avg.)	2.1	2.8	–	↑ 33%

5. Discussion

This study examined how a structured intervention integrating reflective practices and research-based learning influenced the development of reflective and research competencies among future teacher-psychologists in inclusive education settings in Kazakhstan. The findings suggest that embedding reflective and inquiry-based activities within practicum experiences may support competency development among pre-service professionals.
The improvement in reflective competence can be interpreted through established theories of reflective practice. Dewey (1933) conceptualized reflection as a deliberate process of examining experiences to improve future action, while Schön (1983) emphasized the importance of reflection-in-action in professional decision-making. The observed improvements in responsiveness to diversity and reflective decision-making suggest that repeated engagement in journaling, guided reflection, and peer discussions may have encouraged students to critically evaluate their assumptions and adapt their approaches in inclusive classrooms. Rather than simply increasing reflective awareness, these activities appeared to help students connect reflection with practical pedagogical decision-making.
The qualitative findings provide further insight into how reflective competence developed. Students frequently described greater self-awareness, ethical sensitivity, and professional confidence. These findings indicate that reflective practice may contribute not only to technical teaching skills but also to the development of professional identity and inclusive attitudes. This aligns with prior research suggesting that structured reflection promotes ethical reasoning and adaptability in diverse educational contexts (Sweet, 2023; Kushwaha et al., 2024).

Similarly, improvements in research competence suggest that practice-based inquiry activities may help future teacher-psychologists develop evidence-informed decision-making skills. Students' engagement in action research projects required them to identify classroom challenges, collect data, and evaluate potential interventions. These experiences may have reduced the perceived gap between theoretical coursework and practical application. This finding supports previous literature emphasizing the importance of practitioner research in strengthening professional autonomy and problem-solving capacity in teacher education.

The qualitative findings also suggest that mentorship played an important role in competency development. Students frequently identified mentor feedback as a factor that helped them refine both reflective and research practices. This highlights the importance of guided support structures in experiential learning environments, particularly when students are developing complex professional competencies for inclusive education settings.

An important theoretical implication of this study is the relationship between reflective and research competencies. Rather than developing independently, the findings suggest that these competencies mutually reinforced one another. Engagement in research activities encouraged students to critically examine their classroom practices, while reflective processes helped students formulate relevant research questions and interpret findings within ethical and contextual boundaries. This supports the view that reflective inquiry and practitioner research are interconnected dimensions of professional learning.

From a curricular perspective, the findings suggest that competency development may be more effective when reflective activities, research projects, mentorship, and practicum experiences are integrated rather than taught as isolated components (Alghizzawi et al., 2025). For teacher education institutions in Kazakhstan, this may provide a practical framework for strengthening preparation for inclusive education contexts, particularly in settings where professionals must respond to diverse learner needs with limited institutional resources.

Several limitations should be acknowledged. The use of purposive sampling limits the generalizability of the findings, and the absence of a control group restricts causal interpretation. Additionally, the intervention was implemented over two academic semesters, which does not allow conclusions regarding long-term sustainability of competency development. Future studies may benefit from longitudinal designs, larger multi-institutional samples, and comparative intervention models.

Overall, this study contributes to the literature by providing empirical evidence on how reflective and research competencies can be developed simultaneously through structured educational interventions. The findings suggest that integrating reflection, inquiry, and mentorship within teacher education programs may better prepare future teacher-psychologists for the demands of inclusive educational practice.

6. Teacher Education Implications in Kazakhstan

The findings of this study have several implications for teacher education policy and curriculum development in Kazakhstan, particularly in relation to inclusive education reforms.

First, teacher preparation programs may benefit from embedding reflective practice as a formal curricular component rather than treating it as an informal activity. Structured reflective journals, guided reflection exercises, and peer discussion sessions could be incorporated into practicum courses to promote critical thinking and ethical decision-making among future teacher-psychologists.

Second, research training within teacher education programs may require greater emphasis on applied and classroom-based inquiry. Rather than limiting research instruction to theoretical methodology courses, universities may consider integrating action research projects that allow students to investigate real challenges in inclusive classrooms and develop evidence-based interventions.

Third, the findings highlight the importance of strengthening partnerships between universities and schools. Formal mentorship systems involving university supervisors and school-based mentors may enhance professional learning by providing continuous feedback during practicum experiences.

Fourth, curriculum developers and policymakers may consider revising national teacher competency frameworks to explicitly include reflective competence and research competence as core professional standards for teacher-psychologists working in inclusive education settings.

These implications are particularly relevant for rural and under-resourced schools in Kazakhstan, where professionals often face limited institutional support and must rely on adaptive problem-solving strategies.

Strengthening these competencies during pre-service preparation may improve graduates' readiness to respond to diverse learner needs in complex educational environments.

7. Limitations and Future Research

Despite the positive results, this study has a number of limitations that must be mentioned. To begin with, purposive sampling restricts the extrapolation of the findings to general populations. Second, the research took place during a comparatively brief duration of two academic semesters, and it might not be a good measure of the long-term viability of competency development. Also, potential bias may be brought by the use of self-reported data, especially in reflective journals and questionnaires.

The limitations can be resolved by future research studies by undertaking longitudinal studies that will follow up graduates into their careers on the long-term effects of reflective and research competencies. Comparative research in various regions, institutions, and education systems would also help in gaining insights into the scalability and flexibility of the intervention model. In addition, the use of digital tools and technologies to aid the cultivation of reflective and research competencies, especially in blended and online learning settings, requires further research.

8. Conclusion

This study examined the development of reflective and research competencies among future teacher-psychologists in inclusive education settings in Kazakhstan through a structured intervention that combined reflective practices, action research activities, and mentorship support. The findings demonstrated measurable improvements in both competency areas, supported by quantitative results and qualitative evidence from journals, interviews, and mentor observations.

The study contributes to existing literature by providing empirical evidence that reflective and research competencies can be developed simultaneously through integrated, practice-based training rather than being addressed as separate domains. The findings also highlight the interconnected nature of reflection, inquiry, and professional decision-making in inclusive educational contexts.

From a practical perspective, the study suggests that teacher education institutions may strengthen pre-service preparation by integrating structured reflection, classroom-based research, and mentorship opportunities into existing curricula. These findings may be particularly relevant for ongoing inclusive education reforms in Kazakhstan and other contexts seeking to prepare adaptable and evidence-informed education professionals.

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