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Development of Inclusive Learning of Students with a Social Orientation in the Environment of an Educational Cluster based on a Competence-Based Approach

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A B S T R A C T

The purpose of this study is to design and implement an inclusive social learning model for students within an educational cluster, guided by a competence-based approach. A mixed-methods research design was employed, incorporating literature analysis, pedagogical observation, interviews, questionnaires, expert evaluation, and experimental methods, with statistical tools used for data analysis. The study involved 397 undergraduate students majoring in pedagogy and psychology, divided into control and experimental groups. The findings show that the integration of game-based learning, targeted exercises, and virtual simulation significantly improved students' readiness for inclusive educational practices. Additionally, three key outputs were developed and applied: the Demographic Management System Electronic Student Database, a manual titled Pedagogical Skills, and a methodological guide Pedagogical Technologies for Developing Inclusive Education for Socially-Oriented Students. The study demonstrates that a structured interdisciplinary approach, supported by innovative learning technologies, can enhance inclusive competencies among future educators. These results provide practical implications for improving teacher education curricula and fostering inclusive values in higher education.

1. INTRODUCTION

Inclusive education is a globally recognized approach that seeks to provide equal learning opportunities for all students, regardless of physical, intellectual, social, emotional, linguistic, or other conditions (Glushchenko, 2025). It has become a critical educational priority in the 21st century, particularly in the context of forming a socially oriented educational environment (Azizah *et al.*, 2022). Within this framework, the development of inclusive readiness among future teachers plays a fundamental role (Egbedeyi & Babalola, 2023). The competence-based approach offers a promising pathway for addressing the varied educational needs of students with disabilities, ensuring their integration into mainstream educational processes (Kazeem *et al.*, 2025). An inclusive educational cluster, by nature, brings together various educational institutions and resources to provide a unified, supportive environment for learners with diverse needs, contributing to their personal development, socialization, and academic success (Faddillah *et al.*, 2022).

Current research has extensively explored the theoretical foundations and structural components of inclusive education (see **Table 1**). Scholars have investigated the psychological and pedagogical support systems, the motivation and diagnostics of inclusive competencies, and the adaptation processes of students with special needs. These studies have also focused on the pedagogical skills required for inclusive teaching and the development of educational concepts that support the integration of inclusive practices into the learning process. The existing literature highlights the role of didactic, methodological, and technological tools in inclusive education and underscores the importance of teachers' professional readiness to meet diverse learners' needs.

Table 1. Previous research.

Research Scope	Ref.
The role of the concept of educational work of an educational organization in the formation of an inclusive environment	(Khimmataliyev *et al.*, 2024)
Motivation component of diagnostic unit of inclusive competence	(Svitlana *et al.*, 2020)
Psychological and pedagogical support as a mechanism of effective functioning of conditions and parameters of inclusive education	(Maciver *et al.*, 2018)
Pedagogical skills.	(Shavkatovna, 2021)
The concept of modern science and innovation	(Tuychieva, 2015)
Adaptation of younger schoolchildren to learning at basic school as a socio-pedagogical problem	(Sadovaya & Simonova, 2016)
Analysis of traditional and interactive teaching and models of its application	(Botlaeva, 2020)

However, despite these advancements, there remains a notable gap in the practical preparation of future teachers, particularly regarding their ability to integrate social, psychological, and technological competencies in inclusive settings. The implementation of a comprehensive and interdisciplinary training model that effectively combines natural sciences, professional disciplines, and inclusive teaching strategies is still underdeveloped. In particular, insufficient emphasis has been placed on the preparation of teachers capable of working in educational clusters using modern pedagogical technologies and fostering socially oriented inclusive learning environments (Jibril & Adedokun-Shittu, 2024; Ibarrientos, 2024). This study addresses this gap by proposing a model of inclusive training that is systematically embedded in a competence-based educational framework.

The aim of this research is to design and evaluate a model for the development of inclusive learning for students with a social orientation within an educational cluster, based on a competence-based approach. This model is intended to enhance the professional training of future teachers by equipping them with interdisciplinary competencies—pedagogical, managerial, communicative, and research-based—necessary for inclusive education. The findings of this study are expected to contribute to improving the structure and content of teacher education programs, promote inclusive pedagogical practices, and strengthen the readiness of educators to work in socially diverse and inclusive environments.

2. LITERATURE REVIEW

Inclusive education is grounded in the principle that all children, regardless of their physical, intellectual, social, emotional, linguistic, or other conditions, should be provided with equal opportunities to learn and participate fully in the educational process. This concept is supported by various educational theories, including constructivism, which emphasizes the active role of learners in building knowledge through social interaction and meaningful engagement (Rizqita *et al.,* 2024). The sociocultural perspective also underlines the importance of inclusive practices, highlighting that learning is deeply embedded in social and cultural contexts (Azizah *et al.,* 2022). These theoretical foundations provide a rationale for inclusive approaches that promote diversity, equity, and mutual respect in classrooms.

From a psychological standpoint, inclusive education is closely tied to the development of emotional intelligence, empathy, and positive interpersonal relationships. Theories of child development emphasize the significance of creating supportive environments that cater to the individual needs of learners (Al Shaban & Hanafi, 2024). An inclusive setting must not only address academic challenges but also promote a sense of belonging and psychological safety (Azizah *et al.,* 2022). This involves adapting teaching methods, materials, and assessment tools to accommodate different learning styles and abilities, in line with the principles of Universal Design for Learning (UDL). UDL promotes flexibility in the ways information is presented, the ways students respond or demonstrate knowledge, and the ways students are engaged (Hartmann, 2015).

Despite theoretical advancements, the practical implementation of inclusive education still faces numerous challenges. In many educational systems, the preparation of future teachers for inclusive classrooms is not fully developed as a specialized field of study. There is often a lack of structured training that focuses on pedagogical and psychological competencies required to manage diversity effectively (Ketrish *et al.,* 2016). As a result, the development of inclusive education in teacher preparation programs remains fragmented and inconsistent. Addressing this issue requires the integration of inclusive education theory into curriculum design, teacher practicum experiences, and continuous professional development. Only through a comprehensive, theory-informed approach can inclusive education be realized meaningfully in schools.

3. METHOD

This study employed a quasi-experimental design with a control and an experimental group to evaluate the effectiveness of a pedagogical intervention in preparing future teachers for inclusive education. The total number of participants was 397 undergraduate students enrolled in teacher education programs, with 199 students assigned to the experimental group and 198 to the control group. The selection of participants was based on purposive

sampling to ensure relevance to the fields of "Pedagogy and Psychology" as well as "Primary Education and Sports Pedagogy".

The experimental intervention was designed based on a framework for developing inclusive education competencies among prospective teachers. The intervention incorporated interactive and student-centered instructional strategies, including game-based learning, structured practice exercises, and virtual simulation videos. These approaches were selected to enhance student engagement, promote experiential learning, and facilitate the acquisition of pedagogical and psychological skills necessary for inclusive teaching.

Throughout the experiment, both qualitative and quantitative data were collected to assess the effectiveness of the intervention. Pre-tests and post-tests were administered to both the experimental and control groups to measure changes in knowledge, attitudes, and practical skills related to inclusive education. In addition, observational checklists and student reflections were used to gather insights into the learning process and classroom dynamics. The data were analyzed to determine the statistical significance of the observed differences between the two groups, thereby evaluating the impact of the inclusive education training model.

4. RESULTS AND DISCUSSION

The experimental learning sessions were designed using role-playing and simulation-based instructional strategies. These methods were applied to create problem-based scenarios, encourage student discussions, promote the exchange of ideas, develop practical and reflective activities, and foster decision-making skills. Additionally, such activities aimed to build motivation for future professional practice by simulating quasi-professional environments that mirror inclusive classroom realities. The outcomes of the pedagogical experiment are presented in **Table 2**, which illustrates the comparative levels of development in inclusive education competencies among the experimental and control groups at both the initial and final stages of the intervention.

Table 2. The results of pedagogical experiments.

Levels of Development of Inclusive Education	Experimental Group (202 students, %) – Initial	Experimental Group (199 students, %) – Final	Control Group (205 students, %) – Initial	Control Group (199 students, %) – Final
High	42 (20.8%)	67 (33.7%)	41 (20.0%)	46 (23.2%)
Medium	103 (51.0%)	120 (60.3%)	102 (49.8%)	99 (50.0%)
Low	57 (28.2%)	12 (6.0%)	62 (30.2%)	53 (26.8%)

As seen in the **Table 3**, students in the experimental group showed a significant improvement in their level of competence in inclusive education by the end of the intervention. The percentage of students at the high level increased from 20.8% to 33.7%, while those at the low level decreased dramatically from 28.2% to 6.0%. In contrast, the control group's development remained relatively static, with only a slight increase in high-level competence (from 20.0% to 23.2%) and a minor decrease in low-level competence (from 30.2% to 26.8%). To verify the statistical significance of these changes, Pearson's chi-square (χ^2) test was applied. The results demonstrated statistically meaningful differences between the experimental and control groups, confirming the effectiveness of the pedagogical intervention in fostering inclusive education skills. The data were processed using Microsoft Excel.

The Student's t-test value (Th.y = 7.4) significantly exceeds the critical value (1.84), further supporting the hypothesis that the pedagogical model has a substantial effect on the inclusive readiness of future teachers. This confirms that the training model implemented in the experimental group had a statistically significant positive impact compared to conventional methods used in the control group. In conclusion, the experimental implementation of an inclusive training model effectively enhanced the professional competencies of students in the experimental group. The 11% overall improvement in developmental levels demonstrates the practical value of integrating interactive, simulation-based teaching methods into the inclusive education curriculum. These findings affirm the theoretical assumptions presented in the first chapter of the study and provide empirical support for the continued development and application of inclusive education strategies in teacher training programs.

Table 3. Quantitative criteria and indicators.

No	Indicators	Experimental Group (n=199)	Control Group (n=198)
1	Statistical analysis result	65%	76%
2	Standard deviation	0.32	0.50
3	Student's t-test value (Th.y)	7.4 (7.4 > 1.84)	—
4	Statistical conclusion	H_0 rejected, H_1 accepted	—

The findings of this study highlight the significance of implementing inclusive education strategies that are tailored specifically to the training of future teachers. The experimental group, which was exposed to game-based learning methods, physical exercises, and virtual simulation tools, demonstrated noticeably better outcomes in terms of engagement, pedagogical awareness, and adaptability in teaching children with special needs, compared to the control group (Kamens *et al*., 2003; Winter, 2006; Forlin & Chambers, 2011). This suggests that the integration of interactive and experience-based instructional strategies can significantly enhance teacher preparedness in inclusive educational settings.

The effectiveness of game methods and virtual simulations can be attributed to their ability to model real-life teaching scenarios in a low-risk environment. These tools support the development of empathy, critical thinking, and problem-solving skills, which are essential when working with students who have diverse physical and psychological developmental needs (Hanna *et al*., 2021; Albion *et al*., 2021). Moreover, the application of virtual technologies aligns with modern pedagogical trends that emphasize the role of digital literacy and multimodal learning in teacher education.

Additionally, the results underscore the necessity of rethinking the current pedagogical curriculum in higher education institutions to incorporate structured inclusive education modules. The gap previously identified in the literature regarding the lack of targeted psychological and pedagogical training for inclusive education in general schools is confirmed by the control group's comparatively lower performance. Thus, this study contributes to the academic discourse by offering empirical evidence supporting the reform of teacher education programs to include dynamic, inclusive methodologies that reflect contemporary educational demands and societal expectations.

5. CONCLUSION

The methodological improvement in the development of inclusive education for students in the field of social sciences has addressed both theoretical and practical challenges and led to the following conclusions:

(i)   The structure of inclusive education as a social phenomenon comprises several key components: (a) the values underlying inclusive education, (b) its guiding principles, (c) the actors involved, and (d) the social resources that support it. The analysis of these components allows for the identification of essential characteristics in the inclusive training of future teachers, including value-based understanding, tolerance, the multisubjective nature of inclusive educational environments, the variability of teachers' roles, and structural complexity influenced by the specific conditions and demands of teaching in inclusive settings.

(ii) To ensure effective training for inclusive education, it is crucial to differentiate and integrate several core educational functions—adaptive, gnostic, integrative, intensive, motivational, diagnostic, and self-regulatory—within the teacher training process. These functions should be adapted to the context of inclusive education environments and supported by relevant psychological components: motivational, cognitive, emotional, and behavioral aspects. These components serve as a foundation for shaping inclusive competencies in future educators.

(iii) Inclusive competence is a latent personal quality that manifests through specific behavioral indicators. The inclusive preparedness of future teachers can be classified into three levels: low (intuitive), medium (reproductive), and high (professional). A didactic model based on a competence-oriented approach is necessary to guide this development. This model should include a structural and functional analysis of pedagogical tasks, subjective and functional insights into the roles of inclusive education stakeholders, and a teaching process aligned with the required competencies for inclusive educational practice.

To enhance the development of inclusive education for future teachers, three key recommendations are proposed. First, a specialized course on inclusive education should be developed to equip students with both theoretical knowledge and practical skills. Second, the content of general and specialized subjects needs to be optimized to align with inclusive education principles. Third, the methodological framework and teaching support must be improved to ensure the effective and sustainable implementation of inclusive practices in teacher training programs.

6. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. The authors confirmed that the paper was free of plagiarism.

7. REFERENCES

Al Shaban Radi, H.M., and Hanafi, Z. (2024). Managing visually impaired students: Factors that support and inhibit inclusive programs in elementary. *Indonesian Journal of Community and Special Needs Education*, *4*(1), 19-28.

Albion, L., Kaira, M.R., Tawami, T., Fairuz, D.A., and Maulana, H. (2021). Designing English education game application for early childhood. *ASEAN Journal of Science and Engineering Education, 1*(2), 117-124.

Azizah, N., Prasetyo, A.C., Dini, N., Wulandari, V., and Kruesa, M. (2022). Social inclusive education project (SIEP) as a community for handling children with special needs in rural areas. Indonesian Journal of Community and Special Needs Education, 2(2), 89-98.

Boltaeva, M. L. (2020). Analysis of traditional and interactive teaching and models of its application. *Journal of Critical Reviews*, *7*(7), 1577-1587.

Egbedeyi, T.F., and Babalola, A.E. (2023). Availability and challenges of inclusive lower primary education schools. *Indonesian Journal of Community and Special Needs Education*, *3*(2), 93-102.

Faddillah, R.N., Nandiyanto, A.B.D., and Bilad, M.R. (2022) Literacy program for elementary school students about inclusive education in recognizing children with special needs. *ASEAN Journal of Community and Special Needs Education*, *1*(1), 1-8.

Forlin, C., and Chambers, D. (2011). Teacher preparation for inclusive education: Increasing knowledge but raising concerns. *Asia-Pacific Journal of teacher education*, *39*(1), 17-32.

Glushchenko, V.V. (2025). Formation of the methodology of the project-activity game in inclusive higher education. *Indonesian Journal of Multidiciplinary Research*, *5*(1), 53-58.

Hanna, H., Abdul, S.L., Cruz, A.D.B.D., Manalo, Z.T., Papna, F.M.L., and Falle, J.A. (2021). Game-based activity method: A case of grade 5 students. *Indonesian Journal of Teaching in Scienc*e, *1*(1), 13-16.

Hartmann, E. (2015). Universal design for learning (UDL) and learners with severe support needs. *International Journal of Whole Schooling*, *11*(1), 54-67.

Ibarrientos, J.N. (2024). Competency level in information and communications technology (ICT) of teachers: Basis for a technological, pedagogical and content knowledge (TPACK) readiness training program. *Indonesian Journal of Teaching in Science*, *4*(1), 47-60.

Jibril, M., and Adedokun-Shittu, N.A. (2024). Enhancing education: A comprehensive framework for integrating technological pedagogical content knowledge (TPACK) into teaching and learning. *Indonesian Journal of Multidiciplinary Research*, *4*(1), 181-188.

Kamens, M. W., Loprete, S. J., and Slostad, F. A. (2003). Inclusive classrooms: What practicing teachers want to know. *Action in Teacher Education*, *25*(1), 20-26.

Kazeem, S., Alhassan, N., and Falalu, M.K. (2025). Cultivating the pedagogical competence of pre-service science teachers through microteaching. *Indonesian Journal of Teaching in Science*, *5*(1), 21-30.

Ketrish, E. V., Dorozhkin, E. M., Tretyakova, N. V., Andryukhina, T. V., and Mantulenko, V. V. (2016). Building of projecting competence among future teachers in the conditions of introduction of inclusive education. *International Journal of Environmental and Science Education*, *11*(15), 8237-8251.

Khimmataliyev, D. O., Islamova, M. S., and Baratov, D. D. (2024). Content and pedagogical conditions of development of research skills of future engineers based on innovation approach. In *Forum for Linguistic Studies*, *6*(2), 162-169.

Maciver, D., Hunter, C., Adamson, A., Grayson, Z., Forsyth, K., and McLeod, I. (2018). Supporting successful inclusive practices for learners with disabilities in high schools: a

multisite, mixed method collective case study. *Disability and rehabilitation*, *40*(14), 1708-1717.

Rizqita, A.J., Sunardi, S., and Bela, M.R.W.A.T. (2024). Development of traluli program of family-resourced early intervention for multiple disability and visual impairment (MDVI) children with fine motor impairment in inclusive school. *Indonesian Journal of Community and Special Needs Education*, *4*(1), 65-74.

Sadovaya, V. V., and Simonova, G. I. (2016). Socio-pedagogical complex as a pedagogical support technology of students' social adaptation. *International Journal of Environmental and Science Education*, *11*(8), 2069-2083.

Shavkatovna, S. R. (2021). Improvement of methodological pedagogical skills of developing creative activity of primary school students. *ACADEMICIA: An International Multidisciplinary Research Journal*, *11*(10), 289-292.

Svitlana, C. V., Nataliia, L. A., Olena, P., Victoria, S., and Larysa, K. (2020). Formation of an inclusive educational environment of educational institutions. *Revista Tempos e Espaços em Educação*, *13*(32), 1-19.

Tuychieva, I. (2015). The concept of pedagogical innovation in modern education. *The Advanced Science Journal*, *5*, 87-90.

Winter, E. C. (2006). Preparing new teachers for inclusive schools and classrooms. *Support for Learning*, *21*(2), 85-91.