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"THE IMPORTANCE OF INTEGRATING INCLUSIVE AND DIGITAL EDUCATION IN TEACHER EDUCATION"

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ABSTRACT. This article explores the importance of integrating inclusive and digital education in teacher education from both theoretical and practical perspectives. Particular attention is paid to the legal, pedagogical, and technological foundations of inclusive education, as well as to the mechanisms for incorporating key competencies-psychological-pedagogical, methodological, communicative, digital, and reflexive-into curricula and course modules in teacher training programs. The study highlights the role of digital technologies in enhancing inclusive practices, including the use of individualized education plans (IEPs), differentiated instruction, adaptive assessment, and digital learning tools to support learners with special educational needs. Through practical examples, the effectiveness of combining inclusive and digital approaches in creating accessible and flexible learning environments is demonstrated. Furthermore, the article proposes a collaborative model involving educational institutions, families, and communities, supported by digital platforms, and presents a system of monitoring and evaluation indicators to ensure the quality and sustainability of inclusive and digitally enriched learning environments.

Keywords: inclusive education; digital education; teacher education; differentiated instruction; adaptive assessment; digital inclusion; collaboration; monitoring; evaluation.

Introduction. In the context of 21st-century education, the principles of human rights, cultural diversity, and social justice have become fundamental, promoting the idea that no learner should be left behind. Within this paradigm, the integration of inclusive and digital education emerges as a key priority, ensuring not only equal access to learning but also the creation of flexible, personalized, and technology-enhanced educational environments. Inclusive education represents the practical implementation of these principles, interpreting learners' physical, cognitive, socio-emotional, linguistic, and cultural differences not as limitations, but as valuable pedagogical resources, while digital education expands the possibilities for accessibility and participation.

However, in many educational systems, inclusive education is still narrowly interpreted as the adaptation of learners with special needs, whereas its essence lies in the transformation of the entire educational environment into a flexible, equitable, and supportive system. In this regard, digital technologies play a crucial role by enabling adaptive learning environments, assistive tools, and personalized educational pathways. Pedagogical education—defined as the system of training future teachers—thus becomes a decisive factor, as it is within this system that teachers' professional values, inclusive and digital competencies, methodological repertoire, and assessment culture are formed.

Unlike the concept of integration, inclusive education shifts the responsibility for adaptation from the learner to the educational system. In the digital era, this transformation requires that curriculum design, teaching methods, assessment strategies, and communication processes be supported by technology to ensure accessibility and flexibility. Key methodological approaches include Universal Design for Learning (UDL), differentiated instruction, adaptive assessment, individualized education plans (IEPs), and digital inclusion.

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The UDL principle of "one goal-multiple pathways" is further strengthened through digital tools that provide diverse means of engagement, representation, and expression.

At the same time, the effectiveness of inclusive and digitally enriched teaching depends not only on methodological tools but also on the professional identity of the teacher, which encompasses values, beliefs, digital literacy, and reflective practices. Therefore, modern pedagogical education programs should integrate both theoretical instruction and practice-oriented components, such as microteaching, digital pedagogy training, classroom observation, mentorship, and collaboration with families and communities through online platforms.

Despite ongoing reforms, several contradictions remain evident: the tension between standardization and individualization, the balance between digitalization and humanistic pedagogy, the need for both objectivity and flexibility in assessment, and the challenges related to unequal access to digital resources. Addressing these issues requires a systematic, scientifically grounded, and integrative approach within teacher education.

The purpose of this study is to identify the conceptual foundations of inclusive and digital competence formation, to develop mechanisms for their integration into curricula and course modules, and to substantiate methodological approaches that enhance the practical preparation of future teachers in digitally supported inclusive learning environments.

Inclusive education should not be understood as a set of isolated adaptation techniques, but rather as a comprehensive pedagogical paradigm that necessitates the transformation of the entire educational system. In the context of contemporary education, this paradigm is increasingly interconnected with digital education, forming an integrated framework that ensures accessibility, flexibility, and equity in learning environments. This approach is grounded in the principles of human rights and social justice, emphasizing equal opportunities and fairness in educational outcomes through both inclusive practices and digital support.

From this perspective, individual differences among learners should not be viewed as obstacles but as resources that enrich the teaching and learning process. The social model of disability provides a theoretical basis for this approach, asserting that barriers to learning arise not from the individual, but from inadequacies in the educational environment. In digitally enriched contexts, these barriers can be reduced through assistive technologies, accessible digital content, and adaptive learning systems. Consequently, effective solutions involve redesigning learning environments, integrating digital tools, adapting assessment practices, and improving communication strategies.

Constructivist and sociocultural theories further reinforce this perspective by conceptualizing learning as an interactive and technology-mediated process of meaning-making within a social context. Within this framework, the teacher assumes the role of a designer of flexible, inclusive, and digitally supported learning environments that respond to diverse learner needs.

The principle of "one goal-multiple pathways" is operationalized through differentiated instruction and strengthened by digital technologies, which enable the presentation of content through multiple formats (text, audio, video, interactive media) and support diverse forms of participation and expression. Individualized education plans (IEPs) are enhanced through digital monitoring tools, while multi-tiered support systems (RTI/MTSS) can be implemented more effectively using data-driven digital platforms.

Assessment within inclusive education is reinterpreted as a tool for supporting learning rather than merely measuring outcomes. In the context of digital integration, assessment practices become more flexible and adaptive, utilizing online tools, learning analytics, and

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formative feedback systems. Therefore, assessment must ensure validity, fairness, transparency, and accessibility while accommodating diverse learner characteristics through both inclusive and digital approaches.

Methodology. This study employs a mixed-methods research design, integrating both quantitative and qualitative approaches to examine the integration of inclusive and digital education in teacher training. Quantitative data evaluate the effectiveness of implemented pedagogical and digital interventions, while qualitative methods provide deeper insights into the underlying processes, contextual factors, and the practical use of digital tools in inclusive teaching.

Design-oriented research (DOR) is applied to test pedagogical solutions in real educational settings through iterative cycles of diagnosis, design, implementation, and refinement. The research sample includes undergraduate and graduate teacher candidates, university faculty, school mentors, and administrators. A control group is included to enhance the internal validity of the study. Data collection methods include Likert-scale questionnaires, classroom observations, microteaching analysis, review of documents (IEPs, syllabi, assessment materials), focus group discussions, semi-structured interviews, and learning management system (LMS) analytics, which enable tracking of digital engagement and personalized learning pathways.

Results and discussion. The findings indicate that integrating inclusive and digital competencies into teacher education significantly enhances the quality of teaching practices and learner outcomes. The combined implementation of differentiated instruction, adaptive assessment, individualized education plans (IEPs), and digital tools increases student engagement, participation, and academic achievement while ensuring accessibility for all learners.

A three-level conceptual model of digitally supported pedagogical education is proposed:

- **Micro level:** development of teachers' inclusive and digital competencies (knowledge, skills, attitudes, and digital literacy);
- **Meso level:** creation of inclusive and technology-enhanced learning environments (accessibility, psychological climate, collaborative digital platforms);
- **Macro level:** monitoring of systemic indicators through integrated digital dashboards (participation, motivation, equity, and learning analytics).

The study also emphasizes the importance of collaboration among educational institutions, families, and communities, and the role of multidisciplinary digital support systems in ensuring effective inclusion.

Conclusion. Integrating inclusive and digital education represents a transformative paradigm that reshapes teacher education by prioritizing equity, flexibility, and learner-centered approaches supported by technology. Effective implementation requires the incorporation of inclusive and digital competencies into teacher training programs, the development of digitally enhanced supportive learning environments, and the establishment of comprehensive monitoring systems that leverage learning analytics.

Ultimately, the integration of inclusive and digital approaches not only expands access to educational opportunities but also improves the overall quality, adaptability, and sustainability of the educational system, aligning it with the principles of social justice, equity, and 21st-century learning.

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