



PEDAGOGICAL DIAGNOSTICS IN INCLUSIVE EDUCATION: ASSESSING LEARNING PROGRESS OF STUDENTS WITH SPECIAL NEEDS

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Abstract: *Inclusive education requires a comprehensive system for identifying, monitoring, and supporting the educational progress of students with special needs. Pedagogical diagnostics serves as a key mechanism that enables teachers to evaluate individual learning dynamics, detect difficulties, and design personalized educational pathways. This paper provides a theoretical and analytical overview of the concept, functions, and methodological foundations of pedagogical diagnostics in the context of inclusive education. It explores modern diagnostic approaches-such as formative assessment, competency-based evaluation, and digital diagnostic tools-and their role in ensuring equitable and adaptive learning environments. The article emphasizes the importance of diagnostic competence among teachers and discusses challenges faced in implementing pedagogical diagnostics in inclusive classrooms. Based on a synthesis of contemporary research and pedagogical theories, recommendations are proposed for improving diagnostic practices to enhance the educational development of students with special needs.*

Keywords: *pedagogical diagnostics; inclusive education; special needs; assessment; diagnostic competence; individual learning progress*

1. Introduction

In recent decades, inclusive education has become a global educational priority aimed at ensuring equal access to quality learning opportunities for all learners, regardless of their physical, cognitive, or socio-emotional characteristics. Within this context, the role of *pedagogical diagnostics* has significantly increased, as it allows educators to understand each student's learning trajectory, identify difficulties at early stages, and develop evidence-based strategies for effective teaching and support.

Pedagogical diagnostics is not limited to measuring academic achievement; rather, it encompasses the systematic collection and interpretation of data regarding students' learning processes, motivation, social adaptation, and developmental dynamics. In inclusive education, this process becomes particularly complex due to the diverse needs and learning styles of students with disabilities or special educational requirements.

Thus, the need arises for scientifically grounded diagnostic methods that are flexible, person-centered, and ethically appropriate. This paper seeks to analyze the theoretical foundations of pedagogical diagnostics in inclusive education, summarize key international approaches, and provide recommendations for improving diagnostic practices to enhance the learning outcomes of students with special needs.

2. Literature Review

The concept of pedagogical diagnostics has evolved in close connection with the development of educational psychology, assessment theory, and inclusive pedagogy. In its broadest sense, pedagogical diagnostics refers to a systematic process of identifying and analyzing the learning characteristics, needs, and achievements of students to ensure

optimal educational development. Early research focused on diagnostic assessment as a formative component of teaching, emphasizing its role in improving learning outcomes rather than merely classifying learners. With the rise of inclusive education in the 21st century, the diagnostic function of teaching has gained renewed attention, particularly in addressing the diverse educational needs of students with disabilities.

According to the UNESCO framework, inclusive education requires diagnostic tools that are flexible, culturally responsive, and focused on removing barriers to participation. Diagnostic assessment should not stigmatize or label students, but rather help educators design supportive interventions based on individual strengths. Recent studies highlight that teachers' *diagnostic competence*—their ability to interpret students' learning data and make pedagogical decisions—plays a central role in inclusive practice.

Digitalization has also transformed pedagogical diagnostics. The use of digital platforms and learning analytics allows teachers to monitor learning progress continuously, identify learning gaps, and adapt teaching in real-time. However, ethical considerations such as data privacy and fairness remain critical.

In the context of inclusive education, scholars such as Pijl, Loreman, and Mittler argue that diagnostic assessment should focus on the learner's potential rather than limitations. Effective diagnostic systems combine qualitative observations, individualized progress tracking, and collaboration between teachers, parents, and specialists.

In summary, the literature shows that pedagogical diagnostics serves as an integrative process connecting assessment, support, and teaching. Its success in inclusive settings largely depends on teachers'

diagnostic literacy, institutional support, and the ethical application of assessment principles.

3. Methodological Foundations

Pedagogical diagnostics in inclusive education is grounded in several interrelated methodological principles derived from humanistic, developmental, and competence-based approaches to teaching and learning. The following foundations provide the theoretical basis for understanding and applying diagnostic processes effectively in inclusive classrooms.

Humanistic and learner-centered approach. The humanistic paradigm emphasizes respect for the learner's individuality, autonomy, and intrinsic *motivation*. Within this framework, pedagogical diagnostics serves not as a means of control but as a supportive process that helps teachers understand the learner's personality, needs, and potential. In inclusive classrooms, this approach ensures that diagnostics are conducted ethically and with empathy, avoiding any form of stigmatization of students with special needs.

Competence-based and formative orientation. Modern education standards advocate for competence-based assessment, where the focus is on the development of skills and capacities rather than rote knowledge (OECD, 2019). Pedagogical diagnostics aligns with this principle by enabling continuous feedback and formative evaluation. In inclusive education, diagnostic activities should help identify both strengths and developmental areas of learners, thereby supporting individualized learning trajectories.

Systemic and holistic perspective. Pedagogical diagnostics should be viewed as a complex, systemic process that integrates

cognitive, emotional, and social dimensions of learning. According to the systemic model (Reusser & Pauli, 2020), diagnostic data should reflect the interaction between the learner, teacher, environment, and curriculum. This perspective allows educators to interpret diagnostic results within the broader educational ecosystem rather than in isolation.

Ethical and inclusive principles. Ethics play a crucial role in pedagogical diagnostics, especially when working with vulnerable groups such as students with disabilities. Diagnostic procedures must ensure confidentiality, voluntary participation, and informed consent. Moreover, diagnostic tools should be adapted to the learner's linguistic, cultural, and cognitive characteristics (UNESCO, 2020). Inclusivity requires not only technical accuracy but also a commitment to social justice and equality in education.

Digital and data-informed methodologies. The growing use of digital tools has introduced new possibilities for pedagogical diagnostics. Learning analytics systems, online assessment platforms, and adaptive educational technologies allow for more precise and individualized diagnostic insights (Ifenthaler & Yau, 2020). However, methodological rigor must be maintained to ensure that digital diagnostics complement, rather than replace, the teacher's professional judgment. In summary, the methodological foundation of pedagogical diagnostics in inclusive education lies in balancing humanistic values with scientific precision, ensuring that assessment supports, rather than limits, each learner's development.

4. Analysis and Discussion

The practical implementation of pedagogical diagnostics in inclusive education reveals both significant achievements and persistent challenges. While theoretical frameworks provide valuable guidance, translating them into daily educational practice requires structural, methodological, and psychological readiness from all stakeholders.

The role of teachers in diagnostic assessment. Teachers play a central role in the success of pedagogical diagnostics. Research by Praetorius et al. (2018) shows that diagnostic competence includes three core dimensions: perception, interpretation, and decision-making. In inclusive classrooms, these dimensions must be expanded to include the ability to recognize specific learning barriers faced by students with disabilities. Teachers often need additional professional training to conduct diagnostics accurately and to design individualized education plans (IEPs) based on diagnostic data. However, in many educational contexts, teachers lack sufficient methodological resources and time to perform continuous diagnostic monitoring. This leads to a situation where diagnostic data are collected formally but not effectively used in pedagogical decision-making. Therefore, institutional support and professional development in diagnostic literacy are essential components of inclusive education reform.

Diagnostic tools and technological integration. Recent technological developments have introduced innovative diagnostic tools that enable data-driven approaches to inclusion. Digital platforms such as adaptive learning systems, e-portfolios, and analytics dashboards allow teachers to visualize students' learning progress and adjust instruction in real time (Ifenthaler & Yau, 2020). However, technology alone cannot guarantee inclusion. Diagnostic tools must be carefully

adapted to meet the needs of learners with physical, sensory, or cognitive impairments. For instance, visual diagnostic software should provide accessibility features such as screen readers or tactile feedback for visually impaired students.

Ethical considerations also arise regarding data privacy and the potential overreliance on quantitative indicators. Pedagogical diagnostics should integrate both qualitative and quantitative data to ensure a holistic understanding of the learner's progress.

Barriers and challenges. Despite growing awareness, several barriers hinder the effective implementation of pedagogical diagnostics in inclusive settings:

Lack of diagnostic competence among teachers and specialists;

Insufficient methodological frameworks for assessing non-academic skills (e.g., emotional regulation, social adaptation);

Over-standardized curricula that limit flexibility in diagnostic approaches;

Cultural and linguistic diversity, which complicates the interpretation of diagnostic results.

Addressing these challenges requires the development of inclusive diagnostic standards, context-sensitive methodologies, and collaborative teamwork among teachers, psychologists, and special educators.

International best practices. Successful international models demonstrate the potential of integrated diagnostic systems. For example, Finland's education system emphasizes early identification of learning difficulties and provides tiered support (Hautamäki et al., 2019). In Canada and Australia, inclusive diagnostics rely on multi-professional assessment teams and individualized learning plans. These approaches

show that pedagogical diagnostics can function effectively only when supported by institutional policies, teacher training, and interprofessional collaboration.

In summary, the analysis indicates that pedagogical diagnostics in inclusive education should move beyond the technical measurement of knowledge and focus on the learner's holistic development. A balanced combination of digital tools, ethical considerations, and teacher professionalism is the foundation for effective diagnostic practice in inclusive classrooms.

5. Conclusion

Pedagogical diagnostics in inclusive education represents a critical tool for fostering equitable learning opportunities and personalized development for all students, including those with special needs. This article has examined the methodological foundations and practical challenges of pedagogical diagnostics, emphasizing the necessity of combining humanistic values with scientific rigor.

Key conclusions include:

The success of pedagogical diagnostics relies heavily on teachers' diagnostic competence, which requires ongoing professional development and institutional support.

Effective diagnostic assessment should balance qualitative and quantitative data, integrating digital technologies while safeguarding ethical principles such as confidentiality and inclusivity.

Structural barriers such as rigid curricula and insufficient methodological resources hinder the full realization of diagnostic potential in inclusive settings.

International best practices underscore the importance of early identification, multi-professional collaboration, and individualized education plans.

Moving forward, policy makers and educators must prioritize diagnostic literacy and resource allocation to ensure that pedagogical diagnostics become an integral, dynamic component of inclusive education. By doing so, education systems can better meet diverse learner needs, promote social justice, and contribute to sustainable development goals.

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