
Using Digital Criteria in Inclusive Assessment: Enhancing Equity Through Technology

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Annotation *Inclusive assessment ensures that all learners, regardless of ability, background, or language proficiency, have equal opportunities to demonstrate their knowledge and skills. This study explores how digital criteria and tools can be employed to support inclusive assessment in diverse educational contexts. Using a mixed-methods approach, data was collected from teachers and students in inclusive classrooms using digital platforms. Results show that digital criteria foster accessibility, engagement, and differentiated instruction. The findings suggest that carefully designed digital assessment criteria can support inclusive practices, reduce bias, and promote fairness in learning outcomes.*

Keywords *Inclusive education, digital assessment, accessibility, equity, universal design for learning (UDL), differentiated instruction*

Использование цифровых критериев в инклюзивной оценке: повышение равенства возможностей с помощью технологий

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Аннотация *Инклюзивная оценка гарантирует, что все учащиеся, независимо от способностей, происхождения или уровня владения языком, имеют равные возможности для демонстрации своих знаний и навыков. В этом исследовании рассматривается, как цифровые критерии и инструменты могут быть использованы для поддержки инклюзивной оценки в различных образовательных контекстах. С помощью смешанного подхода были собраны данные от учителей и учащихся в инклюзивных классах с использованием цифровых платформ. Результаты показывают, что цифровые критерии способствуют доступности, вовлеченности и дифференцированному обучению. Полученные данные свидетельствуют о том, что тщательно разработанные цифровые критерии оценки могут поддерживать инклюзивные практики, уменьшать предвзятость и способствовать справедливости в результатах обучения.*

Ключевые слова *Инклюзивное образование, цифровая оценка, доступность, равенство, универсальный дизайн обучения (УДО), дифференцированное обучение*

Inklyuziv baholashda raqamli mezonlardan foydalanish: texnologiya orqali tenglikni oshirish

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Annotatsiya *Inklyuziv baholash barcha o'quvchilarning qobiliyatlari, kelib chiqishi yoki til bilish darajasidan qat'i nazar, o'z bilim va ko'nikmalarini namoyish etishda teng imkoniyatlarga ega bo'lishini ta'minlaydi. Ushbu tadqiqot turli xil ta'lim kontekstlarida inklyuziv baholashni qo'llab-quvvatlash uchun raqamli mezonlar va vositalardan qanday foydalanish mumkinligini o'rganadi. Aralash usullardan foydalangan holda, raqamli platformalar yordamida inklyuziv sinflarda o'qituvchilar va talabalardan ma'lumotlar yig'ildi. Natijalar shuni ko'rsatadiki, raqamli mezonlar mavjudlik, faollik va tabaqalashtirilgan ta'limga yordam beradi. Topilmalar shuni ko'rsatadiki, sinchkovlik bilan ishlab chiqilgan raqamli baholash mezonlari inklyuziv amaliyotlarni qo'llab-quvvatlashi, tarafkashlikni kamaytirishi va ta'lim natijalarida adolatlilikni ta'minlashi mumkin.*

Kalit so'zlar *Inklyuziv ta'lim, raqamli baholash, mavjudlik, tenglik, ta'lim uchun universal dizayn (UDL), tabaqalashtirilgan ta'lim*

Introduction

Inclusion in education implies more than placing students with diverse learning needs in the same classroom. It calls for a transformation in teaching and assessment practices to accommodate and support learners from all backgrounds, including those with disabilities, learning difficulties, and multilingual backgrounds. One critical challenge in implementing inclusive education is the development of equitable assessment practices. Traditional assessment tools, often standardized and inflexible, tend to disadvantage students who do not fit the normative learner profile.

Digital technologies offer innovative ways to make assessments more inclusive. The ability to tailor tasks, provide multiple modes of representation and response, and integrate accessibility features positions digital tools as valuable assets in inclusive classrooms. This study examines how using digital criteria – specific guidelines and features embedded in

digital assessments-can help educators design and deliver more inclusive and fair assessment experiences.

Literature review

The concept of inclusive assessment is rooted in broader frameworks of inclusive education, which advocate for practices that recognize and accommodate learner diversity (Florian & Black-Hawkins, 2011). According to the Salamanca Statement (UNESCO, 1994), assessment should be adapted to the needs of students, not the other way around.

Universal Design for Learning (UDL) provides a theoretical foundation for inclusive assessment. Developed by CAST (Center for Applied Special Technology), UDL advocates for designing instructional goals, methods, materials, and assessments that work for everyone (Rose & Meyer, 2002). UDL emphasizes multiple means of engagement, representation, and expression, principles that can be effectively applied through digital platforms.

Recent research underscores the benefits of digital assessment tools in inclusive education. Al-Azawei, Serenelli, and Lundqvist (2016) found that digital platforms incorporating UDL principles significantly improved learner satisfaction and academic performance, especially among students with disabilities. Similarly, Boyle and Topping (2015) note that formative digital assessments offer immediate feedback and flexible formats, which help reduce anxiety and promote learner agency.

However, challenges persist. According to Kearney and Perkins (2014), the successful integration of digital assessment tools depends heavily on teacher digital literacy and institutional support. Inequities in access to devices and internet connectivity can also limit the impact of digital tools in under-resourced settings. Mirakhmatovna, Ismatova S. (2020) mentioned PRS for assessing the activities of students was introduced into the educational process. It allowed us to introduce a differentiated approach to the assessment of knowledge, to change the technology of teaching by changing the ratio of classroom and independent work of students within each academic discipline.

In summary, the literature supports the potential of digital criteria to enhance inclusive assessment, while also emphasizing the importance of training, infrastructure, and thoughtful design.

Digital assessment tools are increasingly bridging critical gaps in education by offering both teachers and learners access to globally competitive, high-quality learning and evaluation opportunities. Below are three academically grounded and effective ways of utilizing these tools in educational practice:

1. *Enhancing formative assessment and continuous feedback*

Digital assessment platforms enable instructors to conduct ongoing, formative evaluations that provide timely and individualized feedback. This continuous feedback loop supports learners' self-

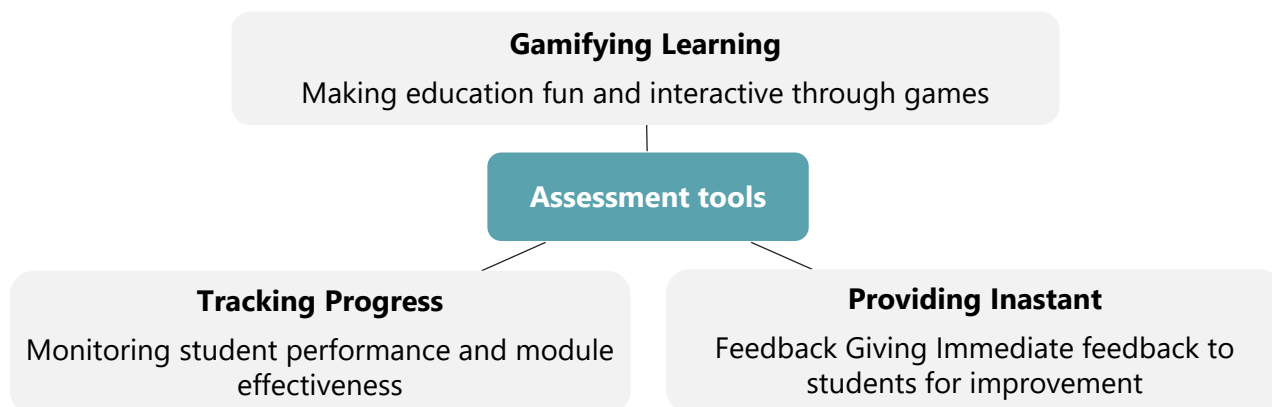
regulation, promotes reflective learning, and allows educators to adjust instructional strategies based on real-time data.

2. *Supporting data-driven and evidence-based decision making*

By collecting and analyzing large volumes of learner performance data, digital assessment tools facilitate informed pedagogical decisions. Educators can identify learning patterns, diagnose gaps in knowledge, and implement targeted interventions, thereby improving the overall effectiveness and equity of the assessment process.

3. *Promoting accessibility, inclusiveness, and global standards*

Digital assessment systems increase accessibility by accommodating diverse learning needs and contexts through flexible formats and adaptive technologies. At the same time, they align local educational practices with international benchmarks, ensuring transparency, reliability, and comparability of assessment outcomes across educational systems (See picture-1):



Picture 1. *Assessment tools*

Digital assessment tools play a crucial role in addressing gaps in modern education by enhancing feedback mechanisms, enabling data-driven instructional decisions, and promoting inclusive, globally aligned assessment practices. Together, these advantages contribute to improved teaching quality, learner engagement, and educational outcomes. Digital assessment is reshaping education by offering innovative solutions for evaluating student performance (Исматова, 2024). While it presents challenges such as digital equity and security, its benefits—including immediate feedback, enhanced engagement, and data-driven insights—are significant.

Methods

3.1. Participants

This study involved 30 teachers and 120 students from five inclusive public schools in urban and rural areas. The student participants included individuals with physical disabilities, neurodiverse learners, and English language learners.

3.2. Research Design

A **mixed-methods** approach was employed to triangulate quantitative and qualitative data. The study was conducted over ten weeks during the spring semester of 2025.

3.3. Instruments

- *Surveys* were administered to teachers and students to assess perceptions of inclusivity and usability of digital assessment tools.

- *Semi-structured interviews* were conducted with teachers to gather deeper insights into their experiences designing and implementing digital assessments.
- *Classroom observations* focused on student engagement and task performance during digital assessment activities using platforms like Google Forms, Quizizz, Kahoot and Microsoft Teams.

3.4. Procedure

Teachers received two weeks of training on inclusive assessment and digital tools based on UDL guidelines. They then implemented digital assessments weekly, incorporating options such as:

- Alternative response modes (text, audio, video);
- Adjustable font sizes and background colors;
- Text-to-speech functionality;
- Timed and untimed formats.

Data were collected at weeks 1, 5, and 10 to evaluate progress and perceptions.

Results

4.1. Improved Accessibility and Participation

Over 90% of teachers observed that digital assessments increased participation among students with learning difficulties and disabilities. Students reported that features such as audio instructions and visual cues helped them better understand tasks.

4.2. Support for Differentiated Instruction

Digital tools allowed teachers to differentiate assessment tasks by content and difficulty. For instance, students could choose between a written essay or a recorded oral explanation. Teachers reported that this flexibility made assessments more meaningful and inclusive.

4.3. Enhanced Student Motivation and Confidence

Students expressed greater comfort using digital tools. One student commented, "I could record my answer instead of writing, and I wasn't afraid of making mistakes." Student motivation scores on the survey rose by 28% from pre- to post-study assessments.

4.4. Teacher Empowerment and Challenges

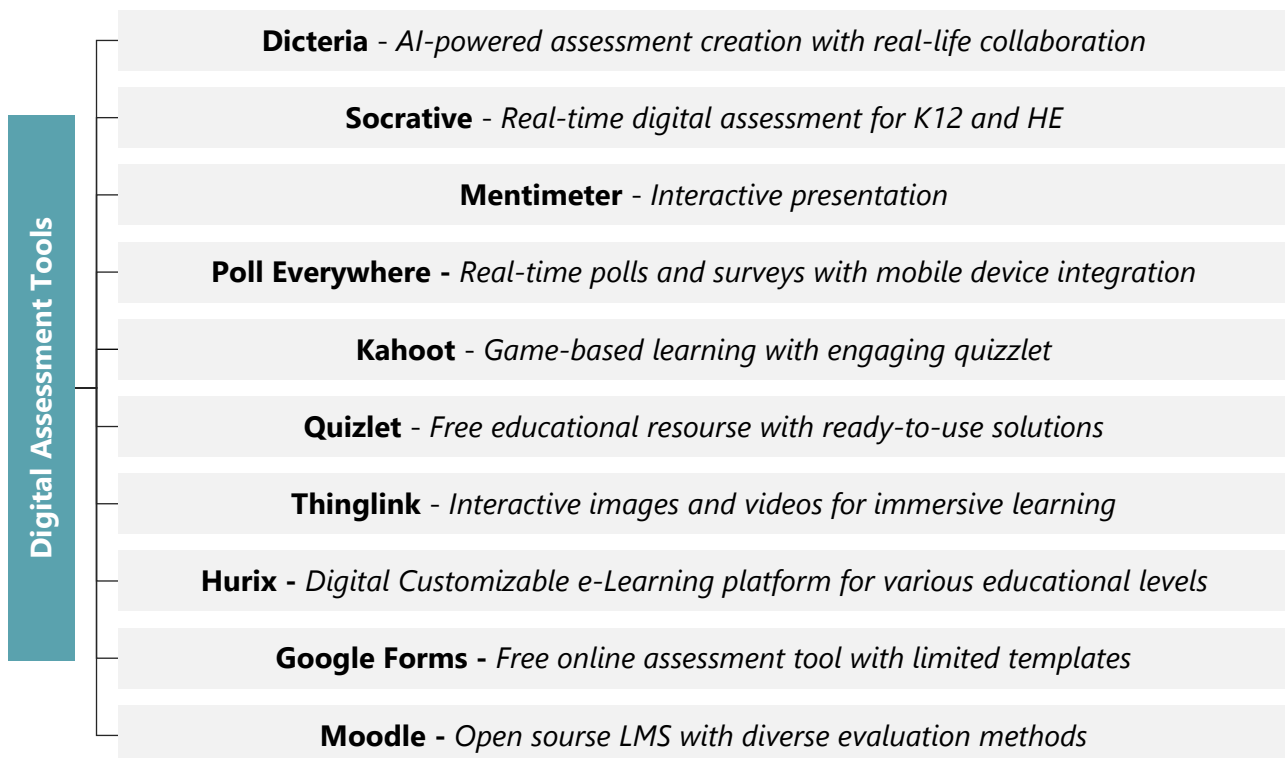
While most teachers valued the new digital assessment methods, 35% reported difficulties in designing equitable tasks due to limited time and lack of institutional guidelines. Nonetheless, all participating teachers agreed that digital tools made inclusion more practical and achievable.

Discussion

The findings reinforce previous research suggesting that digital criteria can enhance the inclusivity of assessments (Al-Azawei et al., 2016; CAST, 2018). The ability to customize assessments and allow multiple modes of response aligns well with the UDL framework. Students benefit from the reduced cognitive load and increased autonomy, while teachers gain tools to observe diverse learning expressions.

However, the study also highlights significant limitations. Digital inclusion is not just about using technology; it requires careful planning, training, and access. Teachers need continuous support to design effective tasks and navigate technological challenges. Institutions must invest in infrastructure and provide guidelines to standardize inclusive digital assessment practices.

The mixed-methods design of the study provided a comprehensive view, but future research could benefit from longitudinal studies across multiple education levels and contexts (See picture-2):



Picture 2. Digital assessment tools

Digital assessment tools extend traditional classroom evaluation by enabling continuous and multidimensional assessment of students' learning processes. By capturing data on creativity, cognitive development, and performance trends, these tools provide detailed and actionable feedback that supports targeted improvement and fosters more effective, learner-centered educational outcomes. In inclusive classes, modern technologies have a wide range of opportunities for organizing general activities of students. In particular, STEAM technologies are effective in differential and individual work with students due to their reflexivity, creativity, and motivational orientation (Ismatova & Mukhamedjanova, 1899, 2023).

Conclusion

This study demonstrates that using digital criteria in assessment significantly supports inclusive practices by offering flexibility, accessibility, and personalized learning pathways. The integration of UDL-based digital tools into assessment design can transform classrooms into more equitable environments for diverse learners. However, to maximize these benefits, educational systems must provide professional development, technological access, and inclusive policy support. Embracing digital criteria is not just a technological shift—it is a pedagogical commitment to fairness and inclusion.

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