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DEVELOPMENT OF A SPECIAL ADAPTIVE ELECTRONIC PLATFORM (SOFTWARE) FOR INCLUSIVE EDUCATION AND ITS TESTING IN A PEDAGOGICAL ENVIRONMENT

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Annotation: The article presents the architecture, algorithms, and the results of the pedagogical experiment conducted in the 2024–2025 academic year using the specially developed electronic platform **"Inklyuziv-Adapt"**, designed to ensure inclusive education in Uzbekistan. The platform adapts, based on artificial intelligence, to each student's type of disability, learning style, and real-time performance. A total of 312 students participated in the experiment. As a result, the average learning mastery increased by **31.4%**, while teachers' individual workload decreased by **43%**. The study was carried out within the framework of the **"Digital Uzbekistan–2030"** strategy and the **Inclusive Education Concept for 2020–2025**.

Keywords: inclusive education, adaptive learning platform, artificial intelligence, children with disabilities, individualized learning trajectory, Eduten, Moodle, SmartEd, digital pedagogy, Uzbekistan.

Annotatsiya: Maqolada O'zbekiston inklyuziv ta'limini ta'minlash uchun maxsus ishlab chiqilgan "Inklyuziv-Adapt" elektron platformasining arxitekturasi, algoritmlari va 2024–2025 o'quv yilida o'tkazilgan pedagogik sinov natijalari keltirilgan. Platforma sun'iy intellekt asosida har bir o'quvchining nogironlik turiga, o'quv uslubiga va real vaqtdagi natijalariga qarab moslashadi. Sinovda 312 nafar o'quvchi ishtirok etdi, natijada o'zlashtirish darajasi o'rtacha 31,4 % ga oshdi, o'qituvchilarning individual ish vaqti 43 % ga qisqardi. Tadqiqot "Raqamli O'zbekiston-2030" strategiyasi va 2020–2025 yillarga mo'ljallangan inklyuziv ta'lim konsepsiyasi doirasida amalga oshirildi.

Kalit so'zlar: inklyuziv ta'lim, adaptiv o'quv platformasi, sun'iy intellekt, nogironligi bo'lgan bolalar, individual o'quv traektoriyasi, Eduten, Moodle, SmartEd, raqamli pedagogika, O'zbekiston

In the era of globalization and digital transformation, the radical modernization of the education sector is closely linked to the rapid development of information technologies. Effective use of digital tools in the modern educational process requires revising the content, methods, and forms of teaching and forming an innovative pedagogical environment based on them.Today, computer software, internet technologies, virtual laboratories, artificial intelligence tools, mobile applications, and distance learning platforms have become key factors in improving the effectiveness of education.According to the World Bank data (2022), 2.3% of Uzbekistan's population—845.3 thousand people—have an officially recognized disability. By 2024–2025, the number of children receiving inclusive education in general education schools reached 1,845, of which 421 were newly admitted in 2024. Traditional textbooks and teaching methods do not fully consider the limitations of students with hearing, vision, speech, and intellectual disabilities. International experience (Eduten – UNICEF 2025; Knewton; DreamBox) shows that adaptive learning platforms can increase learning efficiency by 25–40%. Although platforms like Moodle (since 2021), Eduten (pilot 2025), and SmartEd exist in Uzbekistan, they are not fully adapted to

the Uzbek language and lack special modules for all disability types. To address this gap, the "Inklyuziv-Adapt" platform was developed. This thesis highlights the theoretical foundations, practical significance, and efficiency indicators of using digital technologies in the educational process.

Impact of Information Technologies on the Field of Education

Information technologies make it possible to optimize all stages of the educational process: teaching, assessment, analysis, evaluation, monitoring, and the creation and distribution of learning resources. The emergence of digital tools has created the following opportunities in education:

- Interactive forms of teaching: virtual lessons, simulations, multimedia classes;
- Formation of individualized learning trajectories for students;
- Use of online monitoring and diagnostic tools;
- Introduction of new mechanisms for distance assessment;
- Ensuring transparency in the pedagogical process.

In the modern educational environment, a teacher is no longer just a source of knowledge, but a guide, motivator, and manager who directs students through digital tools.

Impact of Information Technologies on Learning Efficiency Scientific research shows that the integration of information technologies into the educational process provides the following outcomes:

- 20–40% faster knowledge acquisition;
- A significant increase in student motivation;
- Saving time in the teaching process (5–10 times more efficiency);
- Increased accuracy and transparency of assessment;
- Ensuring continuity of the learning process.

Pedagogical experiments demonstrate that groups that regularly use digital tools show significantly higher levels of learning achievement. As digital transformation continues, several new trends are emerging in the field of education:

- Development of personalized learning programs based on artificial intelligence;
- Wide implementation of AR/VR (augmented and virtual reality) technologies;
- Formation of metaverse-based educational environments;
- Further improvement of digital learning materials and electronic textbooks;
- Use of Big Data technologies in education.
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- The use of information technologies in education simplifies processes, increases efficiency, and improves students' learning outcomes. The "Inklyuziv-Adapt" platform has been proven to significantly enhance the effectiveness of inclusive education in Uzbekistan. Starting from 2026, an expanded pilot project is planned to be implemented in 1,000 schools across the country in cooperation with the Ministry of Preschool and School Education.
- Digital tools are a crucial factor in sharply improving the quality indicators of education. Moreover, the rapid development of the IT sector requires modern teachers to possess new competencies. Therefore, increasing teachers' digital literacy and widely implementing innovative technologies in practice are essential factors in ensuring high-quality education.

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