



UO'K: 37.018.43

TA'LIM JARAYONIGA RAQAMLI VOSITALARNI INTEGRATSIYALASH

ИНТЕГРАЦИЯ ЦИФРОВЫХ ИНСТРУМЕНТОВ В ОБРАЗОВАТЕЛЬНЫЙ ПРОЦЕСС

INTEGRATION OF DIGITAL TOOLS INTO THE EDUCATIONAL PROCESS

Toshboltayev Faxriddin O'rinboyevich 

FarDU, "Axborot texnologiyalari" kafedrası katta o'qituvchisi

Annotatsiya

O'qituvchilar ta'limida raqamli vositalardan foydalanish masalasi XXI asr talablari bilan uyg'unlashgan ta'lim tizimlarini yaratish yo'lida tobora dolzarb bo'lib bormoqda. Ushbu tadqiqot o'qituvchilarni tayyorlash dasturlarida raqamli vositalarni integratsiyalash va ularning metodik kompetensiyalarni shakllantirish hamda dars jarayonidagi natijalarni yaxshilashdagi rolini o'rganadi. Tadqiqot aralash uslubda olib borilgan bo'lib, unda so'rovnomalar va kuzatuv metodlari orqali raqamli vositalarning samaradorligi baholangan. Olingan natijalar o'qituvchilarning kasbiy salohiyatida va o'qituvchilarning darsga qiziqishida sezilarli yuksalishlar kuzatilganini ko'rsatadi. Shu bilan birga, resurslarni taqsimlash va o'qituvchilarning tayyorgarligi bilan bog'liq qiyinchiliklar ham aniqlangan. Raqamli vositalarni samarali joriy etish bo'yicha tavsiyalar berilgan.

Аннотация

Использование цифровых инструментов в подготовке педагогов привлекает всё больше внимания в условиях стремления образовательных систем соответствовать требованиям XXI века. Настоящее исследование рассматривает интеграцию цифровых технологий в программы подготовки учителей и их влияние на развитие методологических компетенций, а также на повышение эффективности учебного процесса. Применён смешанный метод исследования, включающий анкетирование и наблюдение, для оценки результативности использования цифровых средств. Результаты показывают значительное улучшение профессиональных навыков педагогов и повышение вовлечённости учащихся. Также выявлены определённые сложности, связанные с распределением ресурсов и степенью готовности преподавателей. В статье обсуждаются рекомендации по оптимизации внедрения цифровых инструментов.

Abstract

The use of digital tools in teacher education has gained increasing attention as educational systems strive to align with XXI century demands. This study investigates the integration of digital tools in teacher training programs and their impact on developing methodological competencies and improving classroom outcomes. The research adopts a mixed-methods approach, combining surveys and observational studies to evaluate the effectiveness of digital tools. The findings highlight significant improvements in teacher competencies and student engagement, while also identifying challenges related to resource allocation and teacher readiness. Recommendations for optimizing digital tool integration are discussed.

Kalit so'zlar: raqamli vositalar, o'qituvchilar ta'limi, metodik kompetensiyalar, dars samaradorligi, AKT integratsiyasi, pedagogik innovatsiya, elektron ta'lim, kasbiy rivojlanish.

Ключевые слова: цифровые инструменты, подготовка учителей, методологические компетенции, эффективность уроков, интеграция ИКТ, педагогические инновации, электронное обучение, профессиональное развитие.

Key words: Digital tools, teacher education, methodological competencies, classroom outcomes, ICT integration, pedagogical innovation, e-learning, professional development.

INTRODUCTION (KIRISH/ВИДЕНИЕ)

Education in the 21st century demands a transformative approach that incorporates digital tools to prepare teachers for dynamic and technology-rich classrooms. Traditional teacher training programs often fall short of addressing the complexities of integrating digital technologies into teaching practices. Consequently, there is a growing need to evaluate and improve teacher education programs to ensure they equip future educators with the necessary skills to utilize digital tools effectively.

This study aims to explore the role of digital tools in teacher education, focusing on their impact on developing methodological competencies and enhancing classroom outcomes. By

PEDAGOGIKA

examining the benefits, challenges, and strategies for successful integration, the research seeks to contribute to the growing body of knowledge on digital pedagogy.

METHODS (ADABIYOTLAR TAHLILI VA METODOLOGIYA/LITERATURA I METODOLOGIYA)

The study employed a mixed-methods design, combining quantitative surveys and qualitative classroom observations. This approach provided a comprehensive understanding of how digital tools influence teacher competencies and student outcomes.

Participants: The participants included 150 pre-service teachers from three teacher training institutions and 30 in-service teachers undergoing professional development courses. The sample represented diverse educational backgrounds and levels of familiarity with digital tools.

Data Collection: Surveys: A structured questionnaire assessed participants' self-reported competencies in using digital tools and their perceptions of its impact on teaching effectiveness.

Classroom Observations: Researchers observed 15 classrooms where digital tools were actively used to evaluate their practical application and influence on student engagement.

Data Analysis: Quantitative data were analyzed using statistical software to identify trends and correlations, while qualitative data from observations were thematically coded to extract key insights.

RESULTS (NATIJALAR/РЕЗУЛЬТАТЫ)

Survey responses indicated that 85% of pre-service teachers reported significant improvements in their ability to design interactive lessons using digital tools. Tools such as presentation software, virtual simulations, and data analysis platforms enhanced their teaching strategies.

Key Skills Gained:

- Creating multimedia lesson plans.
- Using online platforms for collaborative learning.
- Employing digital assessments to evaluate student progress.

Enhanced Student Engagement: Classroom observations revealed a 30% increase in student participation and motivation in technology-rich lessons compared to traditional methods. Digital tools facilitated personalized learning experiences, allowing students to progress at their own pace.

Challenges Identified: Despite these benefits, participants highlighted several challenges:

Resource Constraints: Limited access to reliable internet and modern devices in some institutions.

Skill Gaps: Variability in digital literacy among teachers hindered effective implementation.

Resistance to Change: Some educators preferred conventional teaching methods due to a lack of confidence in using digital tools.

DISCUSSION. (MUHOKAMA/OBSUJDENIJE)

The findings underscore the necessity of integrating digital tools into teacher training curricula. Programs must prioritize:

- Hands-on training sessions to build confidence in using digital tools.
- Continuous professional development to keep pace with technological advancements.
- Opportunities for peer-to-peer learning and collaborative problem-solving.

Strategies for Overcoming Challenges: To address the barriers identified, educational institutions should:

- Invest in infrastructure to ensure equitable access to digital resources.
- Provide tailored training programs to accommodate varying levels of digital literacy.
- Foster a culture of innovation that encourages teachers to experiment with new tools.

Contribution to Classroom Outcomes: The study highlights how digital tools contribute to more engaging and effective teaching practices. By enabling differentiated instruction and fostering interactive learning, these tools align with the diverse needs of modern classrooms.

CONCLUSION (XULOSA/ZAKLYUCHENIJE)

The integration of digital tools in teacher education significantly enhances methodological competencies and improves classroom outcomes. However, its success depends on addressing challenges such as resource allocation and teacher readiness. By adopting targeted strategies and fostering a culture of continuous learning, educational institutions can maximize the benefits of digital tools in teacher training.

This study contributes to the growing field of digital pedagogy by providing evidence-based insights and practical recommendations for optimizing ICT integration in education.

REFERENCES

1. Siemens, G. (2005). Connectivism: A Learning Theory for the Digital Age. *International Journal of Instructional Technology and Distance Learning*.
2. Mishra, P., & Koehler, M. J. (2006). Technological Pedagogical Content Knowledge: A Framework for Teacher Knowledge. *Teachers College Record*.
3. Ertmer, P. A., & Ottenbreit-Leftwich, A. T. (2010). Teacher Technology Change: How Knowledge, Confidence, Beliefs, and Culture Intersect. *Journal of Research on Technology in Education*.
4. OECD (2018). *Teaching for the Future: Effective Classroom Practices for the Digital Age*.
5. Voogt, J., & Roblin, N. P. (2012). *XXI st Century Skills: Discussing the Key Competencies for the Future*.
6. Абдуллаева Б.С. Фанлараро алоқадорлик турлари ҳақида// Узлуксиз таълим Ж. – Т.: 2005-№ 1. -Б.
7. Абдуллаева Б.С. Фанлараро алоқадорликнинг методологик-дидактик асослари (Ижтимоий-гуманитар йўналишдаги академик лицейларда математика ўқитиш мисолида) Пед.фан.док... Дисс. – Т.: ТДПУ, 2006. -Б.264.
8. Адольф В.А., Ильина Н.Ф. *Инновационная деятельность педагога в процессе его профессионального становления: монография*. Красноярск: Поликом, 2007.
9. Адольф В.А. *Формирование профессиональной компетентности будущего учителя // Педагогика*. – 1998. – №1. – С. 74 – 78.
10. Асадов Ю.М. ва бошқалар. *Ўқувчиларда компетенцияларнинг шаклланганлигини ташхислаш ва коррекциялаш методикалари/-Т.: Қори Ниёзий номидаги Ўзбекистон педагогика фанлари илмий-тадқиқот институти босмаҳонаси*. 2016. -Б.158.