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GEOGRAPHICAL EDUCATION AND DIGITALIZATION: GLOBAL EDUCATIONAL PLATFORMS FOR INTERACTIVE LEARNING

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Abstract. *This study focuses on the digitalization of geography education, highlighting the role of modern educational platforms such as GIS, Google Earth, and multimedia resources in enhancing interactivity and personalization. The paper examines the advantages of digital technologies, including the development of spatial thinking and critical analysis. Research findings on the positive impact of digitalization on educational processes are discussed. Recommendations for integrating digital tools into teaching practices are provided.*

Keywords: *geographical education, digitalization, GIS, interactive learning, Google Earth, multimedia resources.*

ГЕОГРАФИЧЕСКОЕ ОБРАЗОВАНИЕ И ЦИФРОВИЗАЦИЯ: ГЛОБАЛЬНЫЕ ОБРАЗОВАТЕЛЬНЫЕ ПЛАТФОРМЫ ДЛЯ ИНТЕРАКТИВНОГО ОБУЧЕНИЯ

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Аннотация. *Статья посвящена вопросам цифровизации в географическом образовании. Рассмотрены современные образовательные платформы и технологии, такие как ГИС, Google Earth, и мультимедийные ресурсы, способствующие интерактивности и персонализации обучения. Выделены ключевые преимущества цифровых технологий, включая развитие пространственного мышления и*

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337

критического анализа. Проанализированы результаты исследований, подтверждающих положительное влияние цифровизации на образовательный процесс. Сделаны рекомендации по эффективной интеграции технологий для преподавателей и студентов.

Ключевые слова. географическое образование, цифровизация, ГИС, интерактивное обучение, Google Earth, мультимедийные ресурсы.

GEOGRAFIK TA'LIM VA RAQAMLI TA'LIM: INTERFAOL TA'LIM UCHUN GLOBAL TA'LIM PLATFORMALARI

Abstrakt. Maqola geografik ta'limda raqamlashtirish masalalariga bag'ishlangan. Zamonaviy ta'lim platformalari va texnologiyalari, masalan, GIS, Google Earth va interaktivlik va ta'limni shaxsiylashtirishga yordam beruvchi multimedia resurslari ko'rib chiqiladi. Raqamli texnologiyalarning asosiy afzalliklari, jumladan, fazoviy fikrlash va tanqidiy tahlilni rivojlantirishga alohida e'tibor qaratilgan. Raqamlashtirishning ta'lim jarayoniga ijobiy ta'sirini tasdiqlovchi tadqiqotlar natijalari tahlil qilindi. O'qituvchilar va talabalar uchun texnologiyalarni samarali integratsiya qilish bo'yicha tavsiyalar berilgan.

Kalit so'zlar. geografik ta'lim, raqamlashtirish, GIS, interaktiv ta'lim, Google Earth, multimedia resurslari.

INTRODUCTION

Geographical education involves acquiring knowledge about the spatial distribution of natural and social phenomena, their interconnections, and governing principles. As global challenges like climate change, biodiversity loss, and urbanization increase, geographical education plays a crucial role in fostering awareness and informed decision-making. The digitalization of education, characterized by the integration of modern technologies, has significantly transformed learning methodologies, making education more engaging and accessible.

The development of geographical education in Uzbekistan is closely tied to government policies and strategic initiatives. According to the *Law on Education of the Republic of Uzbekistan*, the improvement of teaching standards and the use of innovative educational methods are fundamental priorities. The *Strategy for Innovative Development of the Republic of Uzbekistan for 2022–2026* emphasizes the integration of modern technologies, including digital learning tools, into educational curricula. Additionally, the *Concept for the Development of the National Education*

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338

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NamDPI

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System until 2030 outlines the implementation of digital platforms and GIS technologies to enhance teaching effectiveness and accessibility.

METHODS

This study employs a mixed-methods approach, combining quantitative data analysis with qualitative assessments through case studies. Key methodologies include:

- Literature Review: Analyzing previous studies on digital education in geography.

- Surveys and Questionnaires: Conducted among educators and students to assess the effectiveness of digital tools.

- Comparative Analysis: Evaluating traditional and digitalized approaches to teaching geography.

RESULTS

The integration of digital tools into geographical education has resulted in significant improvements in the learning process. One of the key outcomes has been the increased engagement of students. Those who utilize interactive maps, simulations, and multimedia resources show higher levels of interest and better retention of geographical concepts compared to those using traditional teaching methods. The use of GIS-based tools has also contributed to the development of spatial thinking skills. Students demonstrate a greater ability to interpret maps, analyze geospatial data, and draw meaningful conclusions from digital sources.
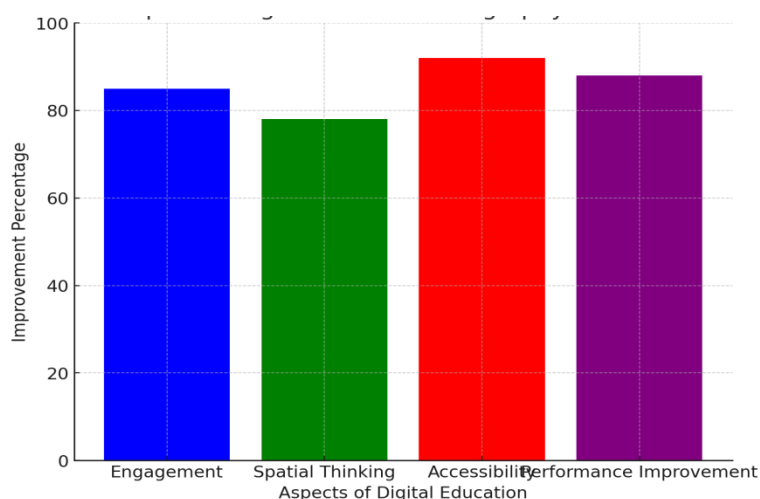
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339

Fugure-1. Impact of Digitalization on Geography Education.

Another important finding is the greater accessibility of geographical education through digital platforms. Online learning resources allow students from different backgrounds and locations to access high-quality educational materials that were previously available only to select institutions. This has led to a more inclusive learning environment, where students can engage with real-world geographical issues regardless of their geographic location. Additionally, research findings indicate a strong correlation between digital education and improved academic performance. Students who engage with digital tools tend to score higher in geography assessments due to their enhanced ability to visualize and analyze spatial relationships.

Table 1: Changes in Geography Education Approaches Due to Digital Technologies

Traditional Approaches	Changes Due to Digital Technologies
Use of printed textbooks	Application of interactive e-textbooks and digital platforms (Google Earth, ArcGIS Online).
Static study of maps	Dynamic study of cartographic material using GIS, 3D maps, and simulations.
Lectures and blackboard notes	Use of interactive whiteboards, presentations, video lectures, and virtual excursions.
Limited access to information	Broad access to up-to-date information through educational platforms and specialized websites.
Local content	Ability to study global geographical processes through international educational resources.

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340

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Paper-based tests and assignments	Use of online tests, interactive tasks, and gamified learning methods.
Limited visualization capabilities	Use of virtual reality (VR) and augmented reality (AR) for immersive topic exploration.
Group work in class	Organization of collaborative projects through online tools (Zoom, Google Workspace, Microsoft Teams).
Difficulty in studying statistics	Automation of geographic data analysis using digital tools (Excel, Python, R).
Uniform approach for all	Personalized learning considering individual needs through adaptive platforms.

DISCUSSION

The digital transformation of geographical education offers numerous advantages, making learning more dynamic and interactive. One of the most notable benefits is the flexibility it provides. Online resources and digital platforms allow students to learn at their own pace, making it easier for them to grasp complex geographical concepts. Moreover, the availability of real-time data enhances their ability to engage with current geographical trends and issues, further enriching their learning experience.

Another significant advantage is the promotion of collaborative learning. Tools like Google Earth, GIS, and online mapping services facilitate teamwork by enabling students to work on group projects that involve real-world geographical data analysis. These tools allow students to share findings, interpret spatial patterns, and collectively work on problem-solving tasks, thus fostering an environment of active learning.

Despite these benefits, challenges in implementing digital tools remain. One of the primary concerns is the digital divide, which prevents students in underprivileged regions from accessing necessary technology and the internet. Limited infrastructure and insufficient teacher training also hinder the full

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341

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integration of digitalization into geographical education. Teachers need specialized training to effectively utilize GIS, digital maps, and interactive platforms in their lessons. Addressing these challenges requires investment in infrastructure, professional development programs, and policies aimed at ensuring equitable access to digital learning resources.

CONCLUSION

The findings of this study underscore the importance of integrating digital technologies into geography education to enhance the quality and accessibility of learning. The widespread adoption of digital platforms has led to increased student engagement, improved spatial thinking, and better academic performance. However, the success of digitalization in education largely depends on addressing existing challenges such as inadequate infrastructure, lack of digital literacy among educators, and disparities in technological access.

To ensure sustainable digital transformation in geographical education, governments and educational institutions must prioritize the expansion of teacher training programs focused on digital skills. Professional development courses should include hands-on training with GIS, online mapping tools, and interactive learning platforms to equip educators with the necessary expertise. Furthermore, targeted investment in educational technology infrastructure, particularly in underserved areas, will help bridge the digital divide and provide equal opportunities for all students.

Additionally, future research should explore innovative methods for integrating artificial intelligence and machine learning into geography education. AI-driven adaptive learning systems can personalize educational content based on students' progress, making learning more efficient and tailored to individual needs. The development of virtual reality (VR) and augmented reality (AR) applications can also revolutionize geographical education by offering immersive experiences that allow students to explore geographic phenomena in a highly interactive manner.

In conclusion, the role of digitalization in geographical education is undeniable. By embracing technological advancements and fostering an inclusive approach to digital learning, educators can provide students with the tools they need to navigate

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342

the complexities of the modern world. As digital education continues to evolve, its successful implementation will depend on collaborative efforts between policymakers, educators, and technology developers to create a more effective and engaging learning environment.

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343