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APPLICATION OF IMMERSION EXPERIENCE IN DIGITAL EDUCATIONAL INSTITUTION: METAUNIVERSITY

Abstract

The use of immersive technologies such as virtual reality (VR) and augmented reality (AR) opens vast opportunities for education by enhancing learning experiences and connecting students and teachers through the digital space. This concept is called Metauniversity. By this term the digitalized interactable copy of the learning environment is meant or a university digital twin in other words. Metauniversity reveals a great potential especially in combination with artificial intelligence technology and tools. This article explores the development of digital universities and the transformation of education and creates our own concept of Metauniversity – an innovative educational environment without borders for learning. It is shown that the concept of Metauniversity is central to this transformation, opening the way to a new era of engaging, accessible and personalized education. As technical challenges are overcome and the potential of these technologies is unleashed, the prospect of creating a global educational ecosystem that is fair, interesting and effective becomes increasingly achievable.

Keywords: Metauniversity; Immersive Technologies; Education; Analysis; Digital Education; Educational Institution.

Introduction

With advances in computing power, graphics, and sensor technologies, the capabilities of immersive systems have expanded significantly, making them more appealing to a wider audience. These are education, medicine, architecture, advertising, tourism and many other industries. Immersive technologies allow users to immerse themselves in virtual worlds or augment reality with augmented elements, creating unique and immersive experiences. Startups and large companies are actively investing in the development and promotion of immersive technologies, which contributes to

their spread and improvement [1, 2]. From an educational perspective, immersive technologies play a key role in Metauniversity's development, providing students and faculty with unique opportunities for learning, research and collaboration.

The main purpose of this article is to review, analyze and classify numerous research findings and literature related to the development of a Metauniversity using immersive technologies. A systematic review of the Metauniversity concept for the period 1997–2023 is provided. The main opportunities and limitations affecting the educational process in the present and future are considered. The own model of the IITU Metauniversity is presented.

The Agile flexible development methodology was chosen as the development methodology, as the most promising way to develop high-quality software. It is based on the use of iterative development methods with dynamic adjustment of requirements at different stages and the possibility of constant interaction between development participants. The approach will ensure high-quality software development, minimizing risks: the final result does not meet the initial requirements and delays in project completion. Primary information will be collected through surveys among users, as well as analysis of academic indicators. The data is planned to be processed using statistical methods to identify significant trends. The entire concept is implemented in the C# programming language, as well as Python. 3D models will be created using the Blender engine, scene development will be created based on the Unity 3D game engine, which allows you to develop applications for a variety of VR platforms.

Materials and methods

A Metauniversity is a concept that expands the traditional boundaries of university education through the use of digital technologies, providing a more open and accessible educational process.

Vest's work (2007) provides a comprehensive historical analysis of the American research university's evolution post-World War II, leading up to the digital age marked by the advent of the World Wide Web. He explores the dynamic interplay between governmental policies, private sector involvement, and the universities themselves, illustrating how these relationships have shaped the modern research institution. The concept of the « Metauniversity" is introduced, reflecting a transformative shift towards a more interconnected, globalized educational framework enabled by technology. This volume offers crucial insights into the forces that have molded contemporary higher education and the trajectory of university evolution in the context of societal changes and technological advancements [1].

Sheridan's work (2008) delves into the evolutionary trajectory of higher education, tracing its path from traditional university structures to the multiversity concept, and eventually to the Metauniversity framework. This progression reflects a transformative shift in educational paradigms, where the focus extends beyond conventional boundaries to embrace a more inclusive, interconnected, and technologically integrated approach. The Metauniversity concept, in particular, encapsulates a future where education transcends physical and institutional limits, fostering a global learning network that leverages digital technologies to facilitate open, collaborative, and lifelong learning opportunities. Sheridan's analysis offers a visionary outlook on the potential directions for higher education, emphasizing innovation, adaptability, and global connectivity [2].

In «The Emerging Meta University,» Vest (2008) articulates the evolution of higher education into a global, interconnected framework termed the "Metauniversity". He envisions an educational ecosystem that transcends traditional university boundaries, embracing the digital revolution to facilitate universal access to knowledge. This concept champions collaborative learning, open educational resources, and the democratization of education, leveraging technology to enable a worldwide educational exchange. Vest's insights highlight the potential of the Metauniversity to foster innovation, inclusivity, and lifelong learning, fundamentally transforming the landscape of higher education by making it more accessible, adaptive, and aligned with the digital age's demands [3].

Weber and Duderstadt's edited volume «The Globalization of Higher Education» (2012) critically examines the impact of globalization on universities worldwide. The book explores how global forces

are reshaping higher education, emphasizing the increasing interconnectedness and interdependence of academic institutions across borders. The contributors discuss various dimensions, including the mobility of students and faculty, the internationalization of curriculum, and the challenges and opportunities posed by global competition and collaboration. The text provides a multifaceted analysis of how globalization is influencing educational policies, institutional strategies, and academic practices, offering insights into the evolving landscape of higher education in a globally interconnected world [4].

Takwale (2013) presents a visionary model in «Param University: Meta University with New Education and Social Development,» proposing a framework for a Metauniversity that integrates innovative educational approaches with social development goals. This model emphasizes the role of technology in creating an adaptive, flexible learning environment that transcends traditional university boundaries, fostering a more inclusive and collaborative educational ecosystem. The concept aligns with the evolving demands of the global knowledge economy, advocating for a university structure that is responsive to societal needs, encourages lifelong learning, and leverages digital platforms to facilitate accessible, quality education for a broader community, thereby contributing to holistic social progress [5]. Kamat et al. (2013) explore the transformative potential of Massive Open Online Courses (MOOCs) in advancing higher education in India, tracing the shift from traditional university structures to the concept of a Metauniversity. Their study highlights how MOOCs can democratize education, providing widespread access to high-quality learning resources and enabling a transition towards a Metauniversity framework. This model represents an inclusive, technology-driven educational paradigm where knowledge transcends physical and institutional barriers, fostering a more collaborative, accessible, and flexible learning environment. The authors emphasize MOOCs' role in promoting lifelong learning and adapting to the changing educational landscape influenced by digital technology and global connectivity [6]. Maslovskyi and Sachenko (2015) introduce an adaptive testing system for assessing student knowledge, utilizing neural networks to tailor the difficulty of questions based on the student's performance. This innovative approach ensures that the testing process is dynamically aligned with the individual's learning pace, enhancing the assessment's accuracy and efficiency. The system's neural network algorithm analyzes response patterns to adjust the question set in real-time, providing a personalized evaluation that can more effectively gauge a student's understanding and mastery of the material. Their research represents a significant contribution to the field of educational technology, offering a sophisticated method for optimizing educational assessments through artificial intelligence [7].

The paper by Vladimirovna O.S., Stanislavovich P.G. & Maratovna N.O. presents a pioneering exploration of the metaverse's potential to revolutionize university business models [8]. Anchored in a comprehensive analysis of digital transformation trends in higher education, the authors argue that the metaverse offers an unprecedented opportunity for universities to innovate in teaching, learning, and administrative operations. Through qualitative and quantitative research methodologies, including case studies and surveys from early adopters, the study identifies key benefits such as enhanced accessibility, personalized learning experiences, and new revenue streams through virtual campus extensions. Moreover, the authors critically examine challenges such as the digital divide, privacy concerns, and the need for substantial investment in technology and training. By comparing traditional and metaverse-enhanced business models, the paper illuminates the strategic shifts necessary for universities to thrive in this emerging digital landscape. The findings suggest that while the transition to a metaverse-based model demands significant organizational change, the potential for creating more engaging, inclusive, and flexible educational environments makes it a compelling path forward for forward-thinking institutions. Suleimenova et al. (2021) present an information model designed to monitor university development effectively. This model integrates various data sources to evaluate and enhance educational quality, research output, and infrastructure growth. Its innovative framework employs computational techniques for real-time analysis, aiding decision-makers in strategic planning and operational improvements. This research contributes significantly to the enhancement of institutional assessment and the optimization of educational strategies in higher education [9]. Farber, Melton, and Alger (2020) discuss the concept of building a

Metauniversity, emphasizing a collaborative educational framework that extends beyond traditional campus boundaries. This innovative idea leverages digital technology to create a global learning network, facilitating access to diverse knowledge resources and expertise. Their vision promotes interdisciplinary integration, continuous learning, and adaptability, addressing the evolving needs of society and the global education landscape in the 21st century [10]. Ranganath (2021) introduces the concept of the Meta University as a student-centric model, emphasizing an educational framework that prioritizes the needs and experiences of students. This innovative approach advocates for a shift from traditional teaching methods to a more flexible, personalized learning environment enabled by technology. The model supports interdisciplinary studies, collaborative learning, and the integration of digital platforms, facilitating a more engaging, inclusive, and adaptable educational experience. This paradigm aims to equip students with diverse skills and knowledge, preparing them for the complexities of the modern world and fostering lifelong learning [11]. Costanza et al. (2021) propose a visionary concept of a global Metauniversity focused on steering society towards a sustainable well-being future. This innovative educational model emphasizes interdisciplinary collaboration and systemic thinking to address global challenges. It integrates diverse knowledge systems, leveraging technology to connect learners worldwide with the aim of fostering sustainable development, equity, and environmental stewardship. The authors argue that such an institution can play a pivotal role in cultivating leadership, promoting innovation, and instilling values essential for a thriving, sustainable world, thereby reshaping education to be more adaptive, inclusive, and impact-oriented [12].

Lipianina-Honcharenko et al. (2022) introduce an innovative concept for an intelligent guide system enhanced with Augmented Reality (AR) support, aiming to revolutionize user interaction in various domains such as education and tourism. This system integrates AR technology to provide real-time, contextual information, enriching the user's environmental perception and interaction. The proposed model combines AI with AR to deliver personalized, interactive experiences, facilitating deeper engagement and understanding. This research outlines the potential of combining these technologies to create advanced, user-centric systems that offer intuitive, informative, and enriched interactive experiences [13].

In «Digital Learning and Digital Institution in Higher Education,» Alenezi (2023) delves into the transformative impact of digital technologies on the higher education sector. The study, published in Education Sciences, volume 13, issue 1, article 88, meticulously examines the integration of digital learning environments and the evolution towards digital institutions [14]. Alenezi's research underscores the dual trajectory of digital adoption: enhancing pedagogical strategies and redefining institutional frameworks. The paper highlights how digital learning tools not only facilitate more accessible and flexible education but also demand a shift in teaching methodologies to be fully effective. Alenezi emphasizes the importance of faculty training and the development of digital competencies among educators as pivotal for maximizing the potential of digital resources. Furthermore, the study explores the concept of digital institutions, which extend beyond mere technology adoption, proposing a holistic transformation of university operations, governance, and culture to align with digital age imperatives. Alenezi's findings suggest that the successful transition to digital institutions necessitates strategic planning, investment in infrastructure, and a culture that embraces change. Despite the challenges, the potential benefits of digital learning and institutions – such as increased global accessibility, personalized learning experiences, and operational efficiencies – are highlighted as key drivers for the ongoing evolution of higher education. Through this comprehensive analysis, Alenezi contributes valuable insights into the strategic integration of digital technologies in higher education, offering a roadmap for institutions aiming to navigate the digital transformation effectively.

Shah N.U., Naeem S.B. & Bhatti R. (2023) explore the intricacies of digital data sets management within university libraries in their study published in Global Knowledge, Memory and Communication. The research meticulously analyzes both the hurdles and prospects that digital data management presents to academic libraries. It underscores the critical role of university libraries in navigating the digital transformation by effectively managing digital data sets, which

are pivotal for academic research and learning [15]. The study identifies key challenges in digital data management, including the need for sophisticated technical infrastructure, the development of staff competencies in data science, issues related to data privacy and security, and the complexities of data preservation and curation. Despite these challenges, Shah and colleagues also highlight the significant opportunities digital data management offers, such as enhancing research capabilities through improved data accessibility, fostering collaborative academic work, and facilitating the long-term preservation of scholarly knowledge. The authors advocate for strategic approaches to address these challenges, emphasizing the importance of investment in technology, continuous professional development for library staff, and the adoption of best practices in data governance and open access policies. Their findings contribute to a growing discourse on the evolution of university libraries in the digital age, suggesting that embracing digital data management can transform libraries into more dynamic, resource-rich environments for the academic community.

Химиця Н.О. (2023) presents a comprehensive analysis of the content of bachelor›s training programs in communications at universities in the USA, as detailed in the Вісник Харківської державної академії культури (Bulletin of the Kharkiv State Academy of Culture), issue 64, pages 61–75. This study meticulously examines the curricular frameworks, educational strategies, and competency goals that define communications training in the US higher education context [16]. The research underscores the diverse and dynamic nature of communication studies in the US, highlighting the emphasis on practical skills, critical thinking, and digital literacy that prepare students for the rapidly evolving demands of the global job market. Химиця points out the integration of interdisciplinary approaches and the use of cutting-edge technology in teaching as key strengths of these programs. The study also addresses the challenges faced by educators in keeping the curriculum relevant to industry trends and fostering a comprehensive understanding of both traditional and digital media landscapes. Furthermore, the analysis suggests that US universities' approach to communication studies, with a focus on flexibility, innovation, and student-centered learning, serves as a model for developing effective training programs worldwide. Химиця's findings contribute valuable insights into the pedagogical practices and educational philosophies that underpin successful communications training, offering potential pathways for curriculum development and enhancement in the field of communication studies globally.

The examined literature collectively underscores the transformative potential of technology-enhanced educational models, such as Metauniversities, intelligent AR systems, and adaptive learning frameworks. These innovations are pivotal in fostering personalized, inclusive, and sustainable learning environments. They reflect a shift towards a future where education transcends traditional boundaries, embracing digital integration and global collaboration to equip learners with the skills and knowledge necessary for addressing contemporary and future challenges.

Results and discussion

The following are quantitative indicators of research in the direction of development of the concept of a Metauniversity. Figure 1 shows a chart from 2014 to 2023 with numerical values that reflect the number of studies, publications, investments, or other indicators related to Metauniversity research. The data was obtained from the Google Internet search base. We see an increase in interest or activity starting in 2014 with a value of 86,500, which peaks in 2023 with a value of 137,000. This steady increase is due to the expansion of digital technologies and increased interest in flexible and integrative educational models. Peaks in 2023 indicate an increase in research in this area and may reflect an increase in university partnerships and the introduction of Metauniversity platforms. The decline in 2022 indicates temporary difficulties, such as funding cuts or changes in education policy.

The overall increasing trend line confirms the growing relevance of Metauniversity research. Based on the diagram, it can be assumed that research in the field of Metauniversities has become more relevant and in demand over the past 10 years. The increase in indicators is associated with

the growing digitalization of education and the need to integrate resources to solve complex multidisciplinary problems.

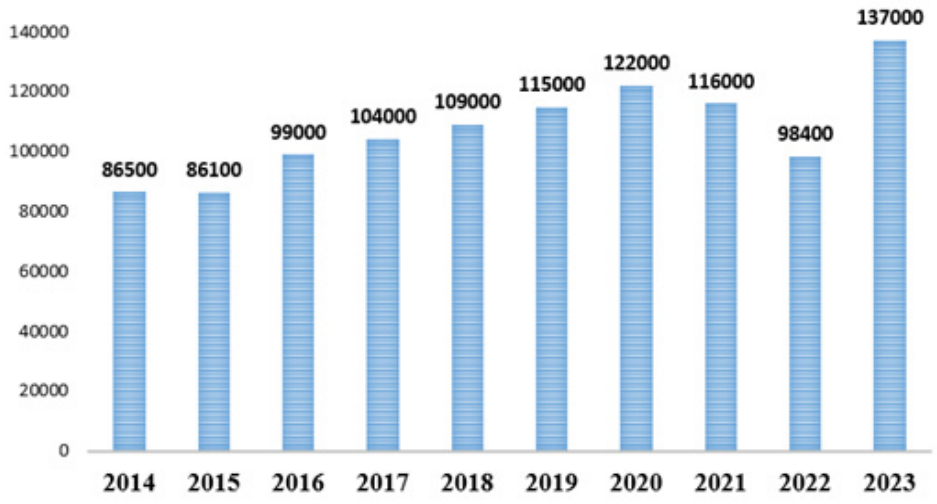

Figure 1 – Research about Metauniversity

Comparing these sources, one can see that the concept of a Metauniversity takes on different interpretations depending on the goals and context. Thus, the development of the Metauniversity concept is one of the fastest growing. Metauniversity is a new culture of learning in a virtual community. IITU, being one of the best technical universities in the Republic of Kazakhstan, offers its own model for the implementation of the Metauniversity. A Metauniversity is a university that provides advanced training of personnel through immersive learning, scientific achievements and technologies of a virtual society. The IITU Metauniversity model consists of 5 elements: technology bank, digital university, scientific knowledge base, immersive technology laboratory and immersive technology solution bank (Figure 2).

Figure 2 – Model of the IITU Metauniversity

The technology bank consists of technologies known and used at IITU, which have been studied, tested and implemented at the university. For example: virtual reality (VR), augmented reality (AR), mixed reality (MR), 360-degree video technologies and tracking and gesture technologies, artificial intelligence, blockchain technologies, etc. IITU specialists are developing instructions for the implementation and use of the technology. For example: The user is given instructions on how to immerse himself in a virtual environment using special helmets and controllers. Thus, the virtual world is accessible through VR headsets such as the Oculus Quest 2 and the Leap Motion controller provided by the Immersive Technologies Laboratory.

This image depicts a conceptual model of a Metauniversity, a university that leverages advanced technology for immersive learning, scientific achievements, and harnesses the technology of a virtual society. The model is presented as a circular flow with six main components:

◆ Technology Bank: A repository of cutting-edge technologies, including information technology, smart economy technology, green technology, and blockchain technology. For example, a blockchain-based repository that allows students and faculty to securely access cutting-edge research, such as sustainable computing platforms or IoT solutions for smart cities. IITU students are developing practical blockchain applications for tracking and managing academic credentials or optimizing energy consumption in green campus initiatives.

◆ Solution Bank Immersive Technology: This bank includes patents, articles, experiments, samples, digital doubles, and immersive technology literature. Students and researchers use immersive VR experiences to simulate surgeries, troubleshoot real-world systems, or learn about environmental disaster management scenarios.

◆ Laboratory Immersive Technology (LIT): Infrastructure that supports scientific and human resources potential within immersive technology labs. IITU has created augmented reality (AR) laboratories, called the Mixed Reality Lab, that allow students to dissect virtual organisms or create and test virtual electronic circuits.

◆ Scientific Database Knowledge: It encompasses artificial intelligence, neural networks, machine learning, as well as virtual, augmented, and augmented reality technologies, and digital footprint data. Using neural networks and machine learning, university faculty and students are creating adaptive systems to improve personalized learning and advance research in computer vision or language processing.

◆ Digital University: This component ensures the high-quality operation of all university business processes, relying on integrated IT solutions. The university aims to develop an automated student management platform that uses AI to streamline admissions, automate assessments, and provide real-time feedback via virtual assistants.

◆ Meta-personnel: Positioned centrally and depicted as a figure engaging with immersive technology, represents the human resources trained by the university in this advanced, interconnected system. Graduates trained as meta-staff are prepared to drive innovation in areas such as game development, augmented reality-based healthcare diagnostics, or AI-powered data management systems.

The model suggests an integrated, technology-focused approach to higher education, with an emphasis on cutting-edge tools and methodologies to train individuals for a digitally sophisticated world.

The Digital University is an innovative and technological educational space that promotes the development of skills necessary for the modern digital world. Each university develops its own digital university model based on its digital transformation strategy, taking into account features, goals, resources and finances. IITU its model of a digital university, consisting of control blocks, such as management of users, roles, educational content and training, reports, commercial operations, services and services.

The Metauniversity scientific knowledge base represents the accumulated body of knowledge available in the virtual world, and it can be presented in various formats. Providing access to up-to-date and reliable scientific and educational information is an important element of the Metauniversity. The first priority for IITU is the creation of an electronic repository of scientific publications, articles, books, conferences and other scientific materials from both its scientists and the world. Examples include IEEE Xplore in engineering and ACM Digital Library in computer science. Artificial intelligence will allow for quick analytical searches about scientific experiments, research results, etc.

No Metauniversity can do without its own laboratory of immersive technologies. IITU has its own Mixed Reality Laboratory, which works on projects to create virtual reality in the field of education and medicine. University guides are being created using 360-degree video technologies, providing students with the opportunity to "immerse" themselves in various places of the university without leaving their home. Virtual courses have been developed that are integrated into the Metauniversity.

The Immersive Technologies Solutions Bank is a resource or repository where IITU solutions related to the use of immersive technologies are collected and provided.

Thus, the proposed concept of the IITU Metauniversity model includes all the stages described in the literature review.

The practical significance of the Metauniversity concept is to ensure accessibility of education, personalization of the educational process, interactive interaction, development of digital competencies, flexibility and scalability of educational programs, as well as integration of virtual achievements into the real educational process. Metauniversity modernizes the educational environment, making it inclusive, relevant and oriented to the needs of modern society.

Currently, the IITU knowledge base is being updated, and a digital educational platform has been developed that allows training in a virtual format.

Conclusion

Research into the field of immersive technologies, especially considering the concept of the Metauniversity, reveals significant changes in educational approaches. This shift towards more interactive, engaging, and accessible education promises to overcome traditional barriers by offering a more personalized learning experience. By harnessing the power of virtual and augmented reality, the concept of a Metauniversity not only enriches the learning experience, but also contributes to the creation of a global educational community freed from geographical restrictions.

A systematic approach was taken to analyze studies devoted to the development of the Metauniversity using immersive technologies. The main opportunities and limitations affecting the educational process in the present and future are considered. The IITU Metauniversity's own model is presented. The scientific novelty of the article lies in creating its own innovative educational environment without borders for learning using the latest developments in the field of artificial intelligence and digital transformation of education.

With the continuous evolution of technology, we are entering a future where the differences between the physical and digital educational spaces become increasingly blurred. The Metauniversity concept plays a key role in this revolution, promising a new era of exciting, inclusive and personalized education. As we solve technical problems and embrace the capabilities of these technologies, the prospect of creating a global educational environment that is equitable, engaging, and effective becomes increasingly real.

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REFERENCES

1 Vest, C.M. The American research university from World War II to world wide web: Governments, the private sector, and the emerging meta-university. Vol. 1. Univ of California Press (2007).

2 Sheridan, E.P. From university to multiversity to meta-university (2008).

3 Vest, C.M. The Emerging Meta University. In: Global Strategies for Emerging Universities. Part III. pp. 217–230 (2008).

4 Weber, L.E., Duderstadt, J.J. (Eds.). The Globalization of Higher Education. Economica (2012).

5 Takwale, R. Param University: Meta University with New Education and Social Development (2013).

6 Kamat, R., Keleher, P., Patil, A., Pujar, S. M. Promulgation of higher education in India: From university to meta university via massive open online courses (MOOCs). In: Proc. IETEC'13 Conference (2013).

7 Maslovskyi, S., Sachenko, A. Adaptive test system of student knowledge based on neural networks. In: IEEE 8th International Conference on Intelligent Data Acquisition and Advanced Computing Systems: Technology and Applications (IDAACS). Warsaw, Poland, pp. 940–944 (2015). https://doi.org/10.1109/IDAACS.2015.7341442.

8 Vladimirovna, O.S., Stanislavovich, P.G., Maratovna, N.O. Metaverse as a new university business model. In: Ufa Humanitarian Scientific Forum. p. 68 (2020).

9 Suleimenova, L., Rakhmetullina, S., Denissova, N., Krak, I., Aitmukhanbetova, E. Information Model for Monitoring the Development of the University. International Journal of Computing, 20 (2), 201–210 (2021). https://doi.org/10.47839/ijc.20.2.2167.

10 Farber, D.L., Melton, D., Alger, M. Building a Meta-University. Bridge, 16, 1–16 (2020).

11 Ranganath, H.A. Meta University: a student-centric model. CURRENT SCIENCE, 121 (7), 882–888 (2021).

12 Costanza, R., Kubiszewski, I., Kompas, T., Sutton, P. C. A global metauniversity to lead by design to a sustainable well-being future. Frontiers in Sustainability, 2, art. 653721 (2021).

13 Lipianina-Honcharenko, K., Savchyshyn, R., Sachenko, A., Chaban, A., Kit, I., Lendiuk, T. Concept of the Intelligent Guide with AR Support. International Journal of Computing, 21 (2), 271–277 (2022). https://doi.org/10.47839/ijc.21.2.2596.

14 Alenezi, M. Digital learning and digital institution in higher education. Education Sciences, 13 (1), art. 88 (2023).

15 Shah, N.U., Naeem, S.B., Bhatti, R. Digital data sets management in university libraries: challenges and opportunities. Global Knowledge, Memory and Communication (2023).

16 Khimitsa, N. O. Analysis of the Content of Bachelors' Training in Communications at the Universities of the USA. Visnyk Kharkivskoi derzhavnoi akademii kultury, 64, 61–75 (2023).

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ЦИФРЛЫҚ БІЛІМ БЕРУ МЕКЕМЕСІНДЕ ИММЕРСИОНДЫҚ ТӘЖІРИБЕНІ ҚОЛДАНУ: МЕТАУНИВЕРСИТЕТ

Аңдатпа

Виртуалды шындық (VR) және толықтырылған шындық (AR) сияқты иммерсивті технологияларды пайдалану оқу тәжірибесін жетілдіруге және студенттер мен оқытушыларды цифрлық кеңістік арқылы өзара байланыстыруға мүмкіндік береді. Бұл тұжырымдама Метауниверситет деп аталады. Бұл термин оқу ортасының цифрлық, интерактивті көшірмесін немесе университеттің «цифрлық егізін» білдіреді. Мақалада цифрлық университеттердің дамуы мен білім берудің трансформациясы қарастырылып, шекарасыз оқу мүмкіндігін ұсынатын инновациялық білім беру ортасы – Метауниверситет тұжырымдамасы жасалған. Метауниверситет тұжырымдамасы тартымды, қолжетімді және дербестендірілген білім берудің жаңа дәуіріне жол ашатын осы трансформацияның өзегіне айналады. Техникалық қиындықтарды жеңіп, осы технологиялардың әлеуетін іске асырған сайын, әділ, тартымды және тиімді білім берудің жаһандық экожүйесін құру көзқарасы барған сайын қолжетімді бола түседі.

Тірек сөздер: Метауниверситет, иммерсивті технологиялар, білім, талдау, сандық білім беру, білім беру мекемесі.

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ПРИМЕНЕНИЕ ОПЫТА ПОГРУЖЕНИЯ В ЦИФРОВОМ ОБРАЗОВАТЕЛЬНОМ УЧРЕЖДЕНИИ: МЕТАУНИВЕРСИТЕТ

Аннотация

Использование иммерсивных технологий, таких как виртуальная реальность (VR) и дополненная реальность (AR), открывает огромные возможности для образования, улучшая учебный опыт и соединяя студентов и преподавателей через цифровое пространство. Эта концепция называется Метауниверситетом. Под этим термином подразумевается цифровая интерактивная копия среды обучения или, другими словами, цифровой двойник университета. В статье рассматривается развитие цифровых университетов и трансформация образования, а также создается собственная концепция Метауниверситета – инновационной образовательной среды без границ для обучения. Показано, что концепция Метауниверситета занимает центральное место в этой трансформации, открывая путь к новой эре увлекательного, доступного и персонализированного образования. По мере преодоления технических проблем и раскрытия потенциала этих технологий перспектива создания глобальной образовательной экосистемы, которая будет справедливой, интересной и эффективной, становится все более достижимой.

Ключевые слова: Метауниверситет, иммерсивные технологии, образование, анализ, цифровое образование, образовательное учреждение.

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