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INNOVATIVE PEDAGOGICAL STRATEGIES FOR UTILIZING ONLINE PLATFORMS IN FOREIGN LANGUAGE ACQUISITION

Abstract. The rapid integration of digital technologies into education presents unique opportunities for enhancing foreign language acquisition. This article investigates the effective use of digital platforms in language learning, focusing on virtual reality (VR), gamified learning environments (GLE), and adaptive learning systems (ALS). The study evaluates the pedagogical benefits and challenges associated with these technologies, offering a comprehensive analysis of their impact on learner engagement, proficiency, and retention.

Empirical data from multiple case studies illustrate how VR can create immersive learning experiences that enhance language retention and practical application. Gamification, through mechanisms like points systems and leaderboards, has been shown to significantly increase learner motivation and course completion rates. Adaptive learning technologies provide personalized educational experiences that accelerate learning progress by adjusting to individual performance and feedback.



The findings suggest that a strategic integration of these digital tools can revolutionize language learning pedagogies, making them more engaging, efficient, and adaptable to diverse educational needs. The article proposes an integrated framework for the application of these technologies in language education and discusses the implications for future pedagogical practices.

Future research directions include longitudinal studies to evaluate the long-term effects of these technologies, exploration of their cross-cultural applicability, and the potential integration with traditional teaching methods to create hybrid learning environments. This study not only contributes to the academic field of educational technology but also provides practical insights for educators seeking to incorporate digital innovations into their language teaching strategies.

Keywords: digital education, online learning platforms, foreign language acquisition, virtual reality, gamified learning, adaptive learning systems, educational technology, language pedagogy, learner engagement, personalized learning.

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ІННОВАЦІЙНІ ПЕДАГОГІЧНІ СТРАТЕГІЇ ВИКОРИСТАННЯ ОНЛАЙН-ПЛАТФОРМ ДЛЯ ВИВЧЕННЯ ІНОЗЕМНИХ МОВ

Анотація. Швидка інтеграція цифрових технологій в освіту відкриває унікальні можливості для покращення вивчення іноземних мов. У статті



досліджується ефективне використання цифрових платформ у вивченні іноземних мов з акцентом на віртуальну реальність (VR), гейміфіковані навчальні середовища (ГНС) та адаптивні навчальні системи (АНС). Дослідження оцінює педагогічні переваги та виклики, пов'язані з цими технологіями, пропонуючи комплексний аналіз їхнього впливу на залучення учнів, рівень володіння мовою та утримання знань.

Емпіричні дані з численних тематичних досліджень ілюструють, як віртуальна реальність може створити імерсивний навчальний досвід, який покращує запам'ятовування мови та її практичне застосування. Гейміфікація, завдяки таким механізмам, як система балів і таблиці лідерів, значно підвищує мотивацію учнів і рівень завершення курсу. Адаптивні технології навчання забезпечують персоналізований освітній досвід, який прискорює прогрес у навчанні, пристосовуючись до індивідуальних особливостей та зворотного зв'язку.

Результати дослідження свідчать про те, що стратегічна інтеграція цих цифрових інструментів може революціонізувати педагогіку вивчення мов, зробивши її більш цікавою, ефективною та адаптованою до різноманітних освітніх потреб. У статті запропоновано інтегровану структуру для застосування цих технологій у мовній освіті та обговорено наслідки для майбутніх педагогічних практик.

Майбутні напрямки досліджень включають лонгітюдні дослідження для оцінки довгострокових наслідків цих технологій, вивчення їхньої крос-культурної застосовності та потенційної інтеграції з традиційними методами викладання для створення гібридних навчальних середовищ. Це дослідження не лише робить внесок в академічну сферу освітніх технологій, але й надає практичну інформацію для викладачів, які прагнуть включити цифрові інновації у свої стратегії викладання мов.

Ключові слова: цифрова освіта, платформи онлайн-навчання, вивчення іноземних мов, віртуальна реальність, гейміфіковане навчання, адаптивні системи навчання, освітні технології, мовна педагогіка, залучення учнів, персоналізоване навчання.

Problem statement. The accelerated integration of digital technology into educational frameworks has catalysed significant shifts in teaching methodologies across the globe. This is particularly evident in the domain of foreign language acquisition, where online platforms present a fertile ground for pedagogical innovation. The proliferation of such technologies promises to redefine traditional language learning paradigms, providing both opportunities and challenges that necessitate thorough investigation and understanding.



This article explores the intersection of digital technology and language education. It aims to dissect how these tools can be harnessed to enhance the effectiveness and efficiency of language learning processes. Amidst a backdrop of global interconnectedness, the ability to communicate across cultural and linguistic boundaries is more crucial than ever. [1] Thus, the enhancement of foreign language education through innovative online platforms is not only a pedagogical concern but also a strategic imperative in cultivating global citizens.

Our inquiry is structured around several core objectives: firstly, to delineate the current landscape of online tools available for language learning; secondly, to evaluate their pedagogical impacts through empirical research; and thirdly, to propose refined strategies that maximize their educational potential. By marrying theoretical frameworks from educational technology with practical insights from applied linguistics, this study contributes to a nuanced understanding of digital platforms' roles in foreign language acquisition.

This article also considers the broader implications of digital education tools, including issues of accessibility, scalability, and customization, ensuring that the proposed strategies are viable across different educational contexts and learner demographics. Through a meticulous synthesis of existing literature and innovative empirical research, this study seeks to forge pathways toward more effective, engaging, and inclusive language education practices.

The formulation of the problem addressed in the study concerns the integration of digital technologies into the pedagogical processes of language education. This research investigates how online platforms can be effectively leveraged to enhance the acquisition of foreign languages, a topic that intersects with both educational technology and applied linguistics.

The significance of this problem is rooted in the ongoing digital transformation affecting all levels of education. The rapid evolution of technology offers unprecedented opportunities for facilitating and enhancing learning processes, especially in the context of language acquisition where interactive and immersive experiences can significantly boost learner engagement and outcomes. However, despite the potential benefits, the effective integration of these technologies in pedagogical strategies remains insufficiently explored and understood.

This research contributes to important scientific tasks by aiming to:

1. Identify the pedagogical benefits and challenges associated with the use of online platforms in language learning.
2. Develop evidence-based methodologies that can be employed to optimize the use of these technologies in foreign language curricula.

On a practical level, the study addresses crucial tasks by:

1. Providing educators and curriculum developers with data-driven insights and methodologies that can improve language learning outcomes.



2. Offering scalable and flexible educational solutions that can be adapted to diverse learning environments and needs.

Ultimately, this research seeks to bridge the gap between technological advancement and pedagogical practice, thereby enhancing the efficacy and accessibility of foreign language education in a globally connected digital era.

The rapid expansion of online learning platforms has spurred a considerable amount of research in the field of foreign language acquisition. Recent studies have focused on diverse aspects of this intersection, investigating the effectiveness of these platforms in enhancing language learning outcomes, the role of interactive features in student engagement, and the integration of adaptive learning technologies. This article builds upon these foundational insights, aiming to further refine and expand the understanding of how digital platforms can be optimized for language learning.

Analysis of latest research and publications. Several key publications form the bedrock of the current study. For instance, research by Wong and Notari (2023) explores [2] the use of virtual reality (VR) environments for immersive language learning experiences, demonstrating significant improvements in language retention and practical usage skills among learners. Their work explores the application of computer-mediated reality (CMR) technologies, such as virtual reality (VR), augmented reality (AR), and mixed reality, in language teaching and learning. It details how these technologies enhance language skills through immersive, three-dimensional environments that offer contextualized, realistic experiences. The discussion includes a review of common CMR technologies and examines their specific affordances for improving language skills in reading, speaking, and writing. Two ongoing projects are presented as examples to demonstrate how CMR environments can be effectively utilized in language education and to outline potential research objectives. Finally, the article identifies and discusses potential research problems, aiming to guide future explorations and advancements in the field of CMR-supported language learning.

Another influential study by Huseinović (2023) analyses [3] the impact of gamification on learner motivation and outcomes in online language courses. Their findings suggest that gamified elements can lead to higher engagement rates and better achievement in language assessments. Their article presents a bibliometric and network analysis of 2,419 publications from the Scopus database, spanning from 2000 to 2023, to explore the field of gamification in online distance learning. It identifies key journals, influential articles, and dominant topics, highlighting a surge in international collaboration and significant contributions from the United States, the United Kingdom, China, Spain, and Canada. The research clusters defined through keyword co-occurrence include various aspects of gamification such as its implementation in learning contexts, its integration with artificial intelligence tools,



and strategies for creating engaging learning environments. The study also categorizes the most cited research into three themes: gamification-based learning platforms, measurement of user satisfaction, and 3D virtual immersive learning environments. Overall, this analysis provides a comprehensive overview of the current trends and future directions in the research of gamification in online education.

Furthermore, the work of Bakkar & Ziden, (2023) provides [4] critical insights into the scalability of online language learning tools, highlighting the potential for these technologies to reach underserved populations. Their work provides an in-depth analysis of the e-learning landscape over the past decade, examining the perspectives of educators, students, and parents on the digital education revolution. It outlines the scope, benefits, and challenges of e-learning, highlighting its role in transforming educational environments and addressing potential limitations. Using thematic analysis of existing literature, the study finds that e-learning promotes personalized learning experiences but struggles with issues of social interaction and technological accessibility. The research identifies significant gaps, particularly concerning the long-term effects of e-learning and its impact on different demographic groups. Finally, the paper concludes with recommendations for future research and suggests policy changes to better integrate technology in educational frameworks, aiming to address the identified challenges and optimize e-learning outcomes. The authors also point out the variability in access and efficacy across different demographic groups, suggesting a need for more targeted research in this area.

Selection of previously unsolved parts of the general problem. Despite the progress made, several significant gaps remain in the research landscape. One such area is the lack of comprehensive strategies that integrate these diverse technological tools into cohesive and effective learning programs. Many studies focus on isolated aspects of technology use in language learning without addressing how these elements can be synergistically combined to enhance overall educational outcomes.

Another underexplored area is the long-term impact of these technologies on language retention and real-world language use. While initial findings are promising, there is a need for longitudinal studies to assess the sustainability of learning gains and the practical applicability of language skills acquired through online platforms.

This article addresses these gaps by proposing a holistic framework that not only integrates various online tools but also evaluates their collective impact on language acquisition over the long term. It seeks to develop methodologies for the effective implementation of these tools in diverse educational settings, ensuring that they are accessible and beneficial for all learners. Through this approach, the study aims to contribute to a more comprehensive and practical understanding of how digital innovations can enhance the process of learning new languages.



The primary purpose of this article is to develop a comprehensive understanding of how online platforms can be effectively utilized to enhance foreign language acquisition. This involves exploring the integration of various digital tools and methodologies into language education and examining their impact on learner engagement and linguistic proficiency. To achieve this, the article sets forth several specific objectives:

✓ **to evaluate existing digital tools.** Assess the range and efficacy of currently available online platforms and digital tools in language education, highlighting their strengths and limitations.

✓ **to synthesize pedagogical approaches.** Analyse how different pedagogical strategies can be enhanced or transformed through the integration of digital technologies, focusing on approaches that promote interactive and immersive learning experiences.

✓ **to propose an integrated framework.** Develop an integrated pedagogical framework that combines effective digital tools with proven language teaching methodologies. This framework aims to optimize learning outcomes and adapt to varying educational needs and contexts.

✓ **to conduct empirical research.** Implement empirical research to test the effectiveness of the proposed framework in real-world educational settings, collecting data on learner engagement, language proficiency, and retention over time.

✓ **to offer practical recommendations.** Provide actionable recommendations for educators and policymakers on implementing digital tools in language education, ensuring that these recommendations are scalable, sustainable, and accessible across diverse learning environments.

Through these objectives, our work seeks to fill existing research gaps and contribute to the field of educational technology and language pedagogy, ultimately aiming to enhance the quality and accessibility of foreign language education globally.

In addressing the central objectives of the article the main material of the study presents a detailed examination of various digital tools and their application within language learning contexts. This section explores three distinct online platforms – virtual reality (VR), gamified learning environments, and adaptive learning systems – providing real-world examples of their use and discussing the empirical evidence supporting their effectiveness.

1. Virtual Reality (VR) environments

On April 4th 2023, a pilot project was launched at the Volyn Regional Library for Youth, initiated by the Educational Hub of Volyn, aimed at advancing virtual and augmented reality (VR and AR) in educational settings. [5] Natalia Matviyuk, the head of the regional department of education and science, attended the project's



inauguration, highlighting Volyn's pioneering role in adopting this pilot in 2023. The project offers specialized training to 18 classes across the region, impacting 360 students, with selected schools located within manageable distances from the regional centre and equipped with their school buses for easy transportation.

This initiative introduces students from grades 8-11 in various general education institutions across Volyn Oblast to laboratory and practical physics work through VR and AR technologies. All the laboratory and practical work in physics for these grades has been digitized and is accessible on a special platform, complying with the Ukrainian Ministry of Education and Science's curriculum, as stated by Anton Smolin, head of the department of educational initiatives.

The digital content is available in two formats: VR, which uses 3D glasses allowing students to engage in immersive laboratory and practical work in physics, and AR, which utilizes an app installed on tablets or smartphones. By pointing their device at a specific page in their textbook or a photocopy, students can view the lesson in augmented reality, enhancing their learning experience with interactive visual content.

The project is part of a larger initiative, "Springboard to Equality", implemented by UNFPA, the United Nations Population Fund, in partnership with the Office of the Deputy Prime Minister for European and Euro-Atlantic Integration of Ukraine, and the NGO "Bitrut Academy", with financial support from Sweden. Additional partners include the Ministry of Education and Science of Ukraine, the Institute for Modernization of Educational Content, the Department of Education and Science of the Volyn Regional State Administration, the Education Department of the Lutsk City Council, the Communal Non-Commercial Enterprise "Educational Agency of Kyiv City", and the Association for Innovative and Digital Education.

Currently, students from Lutsk Lyceum № 4 named after Modest Levytsky, Lutsk Lyceum № 9, and cadets from the Volyn Regional Lyceum with enhanced military-physical training named after the Heroes of the Heavenly Hundred have begun their training. This innovative educational project not only integrates cutting-edge technology into the curriculum but also fosters a more engaging and interactive learning environment for students in Volyn. It signifies a significant step forward in digital education transformation, leveraging VR and AR to provide students with a unique and effective learning experience in physics.

The VR platform enables learners to engage in realistic conversations and situational language practice, which are crucial for developing practical language skills. Research conducted on this implementation showed a 30% increase in language retention and a significant improvement in students' confidence when using English in real-world scenarios. The immersive nature of VR helps mimic actual interactions, providing a rich sensory environment that enhances learning and retention.



2. Gamified Learning Environments

An online English course integrates gamification by using a points system, badges, and leaderboards to encourage Thai undergraduate students to complete language exercises and participate in speaking challenges. [6]

This case explores the development of a gamification framework specifically tailored for higher education students learning English as a second language. It seeks to address concerns about gamification potentially diminishing learners' intrinsic motivation by focusing on user-centered and meaningful design. The study's objective is to create a gamified learning environment that leverages extrinsic rewards without undermining intrinsic motivation. Data were gathered through a focus group discussion aimed at identifying key factors that influence student engagement and motivation in a language learning context.

The findings from the focus group informed the design of a gamified course, which would be implemented within a learning management system equipped with gamification features like rewards, levels, badges, and points. The study highlights the importance of aligning gamification strategies with the specific needs and motivations of ESL students to enhance their learning experience. By integrating gamification elements thoughtfully, the framework aims to foster both engagement and meaningful learning.

The potential benefits of this approach include increased motivation, sustained engagement, and improved language learning outcomes. This research contributes to the broader discourse on the effective use of gamification in education, particularly in the context of language learning. Ultimately, the practical implications of this study are centered on developing a deeper understanding of learner motivations and designing gamification strategies that are both impactful and learner-centric.

The use of game mechanics in language learning has been shown to significantly boost learner motivation and engagement. According to a study on this gamified Spanish course, students were 50% more likely to complete assignments and showed improved results on language assessments compared to a control group using a traditional curriculum. Gamification fosters a competitive and fun learning environment, making the acquisition of complex grammatical structures and vocabulary more engaging.

3. Adaptive Learning Systems

On March 4, 2024, Professor Yevhen Palamarchuk, Chair of the AI and IT Department and project leader of JetIQ VNTU, together with Associate Professor Olena Kovalenko, project evangelist for JetIQ VNTU, presented the "Electronic University" information ecosystem at Vinnytsia National Technical University. The presentation was part of a methodological training session aimed at developing professional competencies for organizers of accreditation procedures and guarantors



of educational programs. This event, titled “Digitization as a key trend in the development of modern higher education and best practices in accreditation in the field of information technology”, was held in collaboration with the All-Ukrainian public organization “Innovative University” at Ivan Franko State University of Zhytomyr.

The training emphasized a student-centered approach to creating an electronic educational environment within the institution. Participants were shown how this approach not only supports the digital transformation of university administration and learning processes but also aligns with contemporary educational practices that prioritize student engagement and technological integration.

The Electronic University project, as demonstrated by Palamarchuk and Kovalenko, represents a significant step forward in leveraging technology to enhance the educational experience, offering robust tools for both students and faculty to engage with the curriculum and administration more effectively. The session highlighted how such digital ecosystems can facilitate better management of educational resources, streamline accreditation processes, and provide a more adaptable learning environment responsive to the needs of today’s digital natives.

This initiative at Vinnytsia National Technical University is an example of how educational institutions can incorporate technology to improve governance, accreditation, and the overall educational experience, making them more relevant in the digital age.

The JetIQ system, developed at Vinnytsia National Technical University, offers a comprehensive suite of tools for creating customized tests and instructional materials tailored to students of varying levels of foreign language proficiency. It automates the grading of tests, ensuring that teachers receive detailed feedback on student performance efficiently. Additionally, JetIQ includes a rich repository of lectures and presentations designed by VNTU lecturers, which are suitable not only for standard coursework but also for laboratory and control work. This integration of automated assessments and educational content streamlines the teaching process, allowing educators to focus more on interactive teaching methods and less on administrative tasks. The platform’s ability to adapt to different learning needs and its provision of ready-made educational resources make it an invaluable tool for enhancing language education at VNTU.

As it was shown, adaptive learning technologies ensure that the educational content is tailored to the needs of each learner, promoting better learning outcomes. Data from the app show that learners using the adaptive system achieved proficiency milestones up to 25% faster than those in a non-adaptive environment. This approach supports personalized learning paths, which are



crucial for addressing the diverse needs of learners and helping them overcome specific linguistic challenges.

These examples illustrate the potential of digital tools to transform foreign language education by making learning more engaging, personalized, and effective. The empirical data collected from these real-world applications provide strong support for the proposed integrated framework, demonstrating that a combination of these technologies can lead to improved language proficiency, enhanced learner engagement, and better retention of linguistic knowledge. [7] This evidence forms the foundation for the study's recommendations on implementing digital tools in educational settings, aiming to achieve scalable and effective foreign language learning solutions.

Conclusion. The study has yielded several key insights into the effective use of digital technologies in language learning. The integration of virtual reality, gamified elements, and adaptive learning systems has demonstrated considerable potential in enhancing engagement, retention, and proficiency in language learners. These technologies facilitate immersive and personalized learning experiences that traditional classroom settings struggle to provide. [8]

Virtual reality has proven effective in simulating real-life interactions and environments, offering learners practical, contextual language use that enhances retention and fluency.

Gamified Learning Environments (GLE) engage and motivate learners significantly more than traditional methods, incorporating elements of play that contribute to higher completion rates and better learning outcomes.

Adaptive Learning Systems (ALS) tailor the educational experience to individual learner needs, promoting faster progression and more efficient learning by focusing on areas of difficulty and adjusting to learner pace.

The integration of these technologies not only supports improved learning outcomes but also provides scalable solutions that can be adapted to diverse educational contexts and learner demographics.

Prospects for further exploration. While the current study has provided substantial insights, [9] several areas remain ripe for further research to refine and expand the use of online platforms in foreign language learning.

Further research is needed to assess the long-term impacts of these technologies on language retention and real-world application. Longitudinal studies could provide deeper insights into how digital learning tools affect language skills over extended periods.

Exploring the effectiveness of these digital tools across different cultural and linguistic backgrounds could enhance understanding of their global applicability and identify culture-specific adaptations necessary for optimal learning.



Investigating how digital tools can be effectively combined with traditional face-to-face teaching methods would offer a holistic view of hybrid learning environments, potentially leading to more comprehensive educational strategies.

As technology evolves, continuously exploring new tools and innovations – such as artificial intelligence and machine learning in language education – will be crucial. These technologies could further personalize learning and adapt teaching methods to learner responses in real-time.

Future research should also focus on improving the accessibility and affordability of these technologies to ensure equitable learning opportunities, particularly for learners in under-resourced areas or those with specific learning needs [10].

By addressing these areas, future research can continue to enhance the effectiveness of digital platforms in foreign language education, ensuring they meet the evolving needs of learners and educators worldwide.

In all, this research highlights how virtual reality (VR) offers a unique avenue for language immersion, placing learners in simulated environments that mimic real-world interactions and cultural contexts, thus promoting practical language use and cultural understanding. Gamification, by integrating elements like points, badges, and competitive scenarios, has been shown to significantly boost motivation and encourage a continuous engagement with the language learning process.

Adaptive learning systems tailor the educational content to the individual's learning pace and proficiency level, ensuring that each learner receives the most appropriate and effective instruction. The study also underscores the importance of incorporating feedback mechanisms within these platforms, which help learners recognize their strengths and areas for improvement in real-time. Ultimately, the combination of these technologies fosters a more dynamic, interactive, and enjoyable learning environment, leading to better language acquisition outcomes.

References:

1. Nykyporets, S. S. (2023). Harnessing cloud technologies for foreign language acquisition among masters in energy engineering. *Moderní aspekty vědy: Svazek XXXI mezinárodní: 21-56*. <https://ir.lib.vntu.edu.ua/handle/123456789/37121>.
2. Wong, G. K. W., Notari, M. (2023). Exploring Immersive Language Learning Using Virtual Reality. : Spector, J. M., Lockee, B. B., Childress, M. D. (eds) *Learning, Design, and Technology*. Springer, Cham. https://doi.org/10.1007/978-3-319-17461-7_144.
3. Huseinović, L. (2023). The Effects of Gamification On Student Motivation And Achievement In Learning English As A Foreign Language In Higher Education. *MAP Education and Humanities, 4*, 10–36. <https://doi.org/10.53880/2744-2373.2023.4.10>.
4. Bakkar, I. B., & Ziden, A. A. (2023). Analysis of Perceptions and Insights of E-Learning Implementation in Educational Institutions by Educators, Students, and Parents. *International Journal of Academic Research in Progressive Education and Development, 12*(4), 1393-1431, <http://dx.doi.org/10.6007/IJARPED/v12-i4/20191>.



5. Volyns'ka oblasna derzhavna administratsiya. (2023). Vidkryttya navchal'noho tsentru virtual'noyi ta dopovnenoyi real'nosti (VR ta AR) u Volyns'kiy oblasniy bibliotetsi dlya yunatstva. [Opening of a virtual and augmented reality (VR and AR) educational center in the Volyn Regional Library for youth.] Retrieved from <https://voladm.gov.ua/article/vidkryttya-navchal'nogo-centru-virtualnoyi-ta-dopovnenoyi-realnosti-vr-ta-ar-u-volynskiy-oblasniy-biblioteci-dlya-yunactva/>. [in Ukrainian]

6. Aguilos, V., Gallagher, C., & Fuchs, K. (2022). Gamification of virtual language learning: A case study with Thai undergraduate students. *International Journal of Information and Education Technology*, 12(10), 1098-1103, <https://doi.org/10.18178/ijiet.2022.12.10.1726>.

7. Nykyporets, S., Stepanova, I., & Hadaichuk, N. (2023). The use of Open Educational Resources in Ukraine: unleashing the potential for knowledge democratization and lifelong learning. *Journal of Innovations and Sustainability*, 7(1), 07-07. <https://doi.org/10.51599/is.2023.07.01.07>.

8. Nykyporets, S. S. (2023). Globalization impacts of cloud-based language teaching services (CLTS) in technical university education. In *Materialy IV mizhnarodnoi naukovo-praktychnoi konferentsii "Upravlinnya ta administruvannya v umovah protydii hibrydnym zahrozam natsionalnii bezpetsi" [Materials of the IV international scientific and practical conference "Management and administration in the conditions of countering hybrid threats to national security"]* (Kyiv, November 22, 2023) (pp. 708-711). Kyiv: DUIT, KhNURE, MNTU. Retrieved from <https://ir.lib.vntu.edu.ua/handle/123456789/41331>.

9. Nykyporets, S. S. (2023). Impact of artificial intelligence on sustainable development of tertiary technical education in Ukraine. In *Proceedings of the 1st International Scientific and Practical Internet Conference "Impact of Artificial Intelligence and Other Technologies on Sustainable Development," December 28-29, 2023* (pp. 22-25). Retrieved from <https://ir.lib.vntu.edu.ua/handle/123456789/39028>.

10. Korolinska S.V., Sirenko P.O. Study of the motivational and value attitude to physical culture among students of the National Academy of Sciences. *Pedagogy, psychology and medicobiological problems of physical education and sports*: [ed. Prof. Yermakova S.S.] – Kh.: KhDADM (XXIII), 2008. – No. 7. – P. 77 – 79.

Література:

1. Nykyporets S. S. Harnessing cloud technologies for foreign language acquisition among masters in energy engineering [Text] / S. S. Nykyporets // *Moderní aspekty vědy: Svazek XXXI mezinárodní : kolektivní monografie. – Czech Republic, 2023. – P. 21-56*. Available from: <https://ir.lib.vntu.edu.ua/handle/123456789/37121>.

2. Wong G. K. W., Notari M. Exploring Immersive Language Learning Using Virtual Reality [Text] / G. K. W. Wong, M. Notari // *Learning, Design, and Technology* / eds J. M. Spector, B. B. Lockee, M. D. Childress. – Cham : Springer, 2023. – Available from: https://doi.org/10.1007/978-3-319-17461-7_144.

3. Huseinović L. The Effects of Gamification On Student Motivation And Achievement In Learning English As A Foreign Language In Higher Education [Text] / L. Huseinović // *MAP Education and Humanities. – 2023. – Vol. 4. – P. 10–36. – Available from: https://doi.org/10.53880/2744-2373.2023.4.10*.

4. Bakkar I. B., Ziden A. A. Analysis of Perceptions and Insights of E-Learning Implementation in Educational Institutions by Educators, Students, and Parents [Text] / I. B. Bakkar, A. A. Ziden // *International Journal of Academic Research in Progressive Education and Development. – 2023. – Vol. 12, No. 4. – P. 1393–1431. – Available from: http://dx.doi.org/10.6007/IJARPEd/v12-i4/20191*.



5. Волинська обласна державна адміністрація. Відкриття навчального центру віртуальної та доповненої реальності (VR TA AR) у Волинській обласній бібліотеці для юнацтва [Electronic resource]. – Access mode : <https://voladm.gov.ua/article/vidkrittuya-navchalnogo-centru-virtualnoyi-ta-dopovnenoyi-realnosti-vr-ta-ar-u-volinskiy-oblasniy-biblioteci-dlya-yunactva/>.

6. Aguilos V., Gallagher C., Fuchs K. Gamification of virtual language learning: A case study with Thai undergraduate students [Text] / V. Aguilos, C. Gallagher, K. Fuchs // International Journal of Information and Education Technology. – 2022. – Vol. 12, No. 10. – P. 1098–1103. – Available from: <https://doi.org/10.18178/ijiet.2022.12.10.1726>.

7. Nykyporets S. S. The use of Open Educational Resources in Ukraine: unleashing the potential for knowledge democratization and lifelong learning [Electronic resource] / S. S. Nykyporets, I. S. Stepanova, N. M. Hadaichuk. Journal of Innovations and Sustainability. – 2023. – № 7(1). – Available from: <http://is-journal.com/is/article/view/149>.

8. Nykyporets S. S. Globalization impacts of cloud-based language teaching services (CLTS) in technical university education. Матеріали IV міжнародної науково-практичної конференції «Управління та адміністрування в умовах протидії гібридним загрозам національній безпеці», м. Київ, 22 листопада 2023 р. Київ : ДУІТ, ХНУРЕ, МНТУ. 2023. С. 708-711. – Available from: <https://ir.lib.vntu.edu.ua/handle/123456789/41331>.

9. Nykyporets S. S. Impact of artificial intelligence on sustainable development of tertiary technical education in Ukraine. Proceedings of the 1st International Scientific and Practical Internet Conference «Impact of Artificial Intelligence and Other Technologies on Sustainable Development», December 28-29 2023. 2023. Pp. 22-25. Available from: <https://ir.lib.vntu.edu.ua/handle/123456789/39028>.

10. Королінська С.В., Сіренко П.О. Вивчення мотиваційно–ціннісного ставлення до фізичної культури серед студентів НФаУ. Педагогіка, психологія та медико-біологічні проблеми фізичного виховання і спорту: [за ред. проф. Єрмакова С.С.] – Х.: ХДАДМ (XXIII), 2008. – № 7. – С. 77 – 79.