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Вивчення впливу дослідження інтеграції цифрових технологій на розвиток навчальної автономії студентів-економістів для досягнення цілей сталого розвитку

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Анотація: ***Мета статті*** *пов'язана з розвитком навчальної автономії серед студентів-економістів шляхом інтеграції цифрових технологій, що відповідає Цілям сталого розвитку Організації Об'єднаних Націй: якісна освіта, наприклад, де цифрові інструменти зазначаються як засіб покращення доступності, якості та інклюзивності освіти, одночасно підтримуючи персоналізоване навчання та зменшуючи освітні бар'єри. У контексті економічної освіти сприяння навчальній автономії є важливим для підготовки майбутніх фахівців, здатних адаптуватися до динамічних вимог ринку праці.*

Методологічною *основою дослідження є інтеграція цифрових технологій, а саме інструментів та платформ, у навчальний процес для сприяння навчальній автономії, зосереджуючись не тільки на інтеграції цифрових технологій в освітній процес для сприяння автономії, але й для започаткування засад самостійного навчання. Підходи зосереджені на адаптації навчання до індивідуальних потреб, підвищенні цифрової грамотності та створенні умов для гнучкої та інклюзивної освіти. Особлива увага приділялася компетенціям, необхідним для сучасного ринку праці. Крім того, у дослідженні розглядалася роль розвитку викладацького складу в ефективному впровадженні цифрових інструментів у педагогічну практику.*

Результати *дослідження показали, що цифрові технології значною мірою сприяють покращенню якості освіти та інклюзивності, підвищують конкурентоспроможність студентів та розвивають професійні навички, що стосуються цифрової економіки. Вони також сприяють критичному мисленню, розвитку аналітичних навичок та готовності до навчання протягом усього життя. Крім того, дослідження демонструє позитивний вплив на інші цілі, такі*

як гідна праця та економічне зростання, промисловість, інновації та інфраструктура, зменшення нерівності.

***Висновки** підкреслюють необхідність інтеграції цифрових технологій у вищу освіту для модернізації освітніх систем, сприяння цифровій грамотності серед учасників освітнього процесу та підготовки автономних фахівців, здатних ефективно функціонувати в умовах глобалізованої цифрової економіки.*

***Ключові слова:** ООН, самостійне навчання, індивідуальне навчання, мета.*

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Studying the impact of digital technology integration research on the development of learner autonomy of economics students towards achieving sustainable development objectives

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Abstract: The aim *of the article deals with the development of learner autonomy among economics students through the integration of digital technologies, aligned with the United Nations Sustainable Development Objectives: quality education, for example, where digital tools are emphasized as a means to improve accessibility, quality, and inclusivity of education while supporting personalized learning and reducing educational barriers. In the context of economics education, fostering learning autonomy is essential for preparing future professionals capable of adapting to dynamic labour market requirements.*

The methodological *basis of the research is the integration of digital tools and platforms into the learning process to foster autonomy, focusing on integrating digital technologies into educational process to promote autonomy and self-directed learning. Approaches focused on adapting instruction to individual needs, enhancing digital literacy, and creating conditions for flexible and inclusive education. Special attention was given to the competencies required for the modern labor market. In addition, the research considered the role of staff development in effectively incorporating digital tools into teaching practices.*

The results *of the research showed that digital technologies significantly contribute to improving educational quality and inclusiveness, enhancing students' competitiveness, and developing professional skills relevant to the digital economy. They also promote critical thinking, analytical abilities, and lifelong learning readiness. Furthermore, the study demonstrates a positive impact on the other objectives as decent work and economic growth, industry, innovation, infrastructure, and reduced inequalities.*

The conclusions *emphasize the necessity for integrating digital technologies into higher education for modernizing educational systems, fostering digital literacy among all the participants of the learning process, and preparing autonomous specialists capable of functioning effectively in a globalized digital economy.*

Keywords: *United Nations, self-directed learning, individual learning, goal.*

Problem statement. In the modern educational environment, digital technologies are not only a means of improving educational processes, but also an agent of transformations that contributes to the development of key competencies of students. One of such competencies is readiness for learner autonomy (or independence), which implies the ability of students to independently organize the educational process, take responsibility for own learning, use digital resources and adapt to new educational challenges. This is especially important for students of economic specialties, since the rapid development of technologies and globalization requires a high level of independence, digital literacy and readiness for continuous professional development.

Analysis of recent research and publications. The study carried out in this work is devoted to the revelation of the readiness of economic specialization students to learner autonomy by means of using digital technologies, and contributes to the solving of the United Nations Global Objectives of Sustainable Development [1], primarily to the solution of the objectives: #4 – Ensuring inclusive and equitable quality

education, #9 – Stimulating innovation and infrastructure development, #8 – Creating decent jobs and economic growth, #10 – Reducing inequality [2].

In fact, whereas further investigation of the influence of digital technologies on the learner autonomy of students could contribute to developing skills needed for independent learning and for adapting to fast-evolving professional environment that can in turn foster opportunities to access decent work and economic growth (Objective 8) [1,3,4]. Learning how to handle whatever the newest app that comes out when they are studying means they are already fighting fit to get into the workforce, most importantly so if they are studying economics, and are likely to increase social and economic disparities, which lead to social unrest (Objective 10) [5,6,7]. In addition, the concepts of Education 5.0 (digital age education) and approaches to the formation of digital competence strengthen the argumentation regarding the need to integrate technologies for the training of modern specialists [8].

From a theoretical point of view, the study expands the idea of the integration of digital technologies into the educational process, emphasizing the importance of developing critical thinking, independence, and digital literacy in future specialists [9].

The practical impact of the work consists in the development of effective methods and strategies that can be applied in universities to improve the quality of education and prepare students for work in a rapidly changing digital environment [10].

In addition, the social impact of the study consists in the formation of competent and change-ready specialists who are able to act effectively in the conditions of globalization and digitalization of the economy, which has a positive impact on the development of economic and social systems at all levels [11].

Identification of previously unresolved aspects of the general problem. The proposed research of the influence on the process of formation of the readiness of economic specialties students for learner autonomy using digital technologies reveals previously unexplored aspects of the integration of innovative tools into higher education establishments. It demonstrates that digital technologies increase the

flexibility and individualization of learning, contribute to the development of critical thinking, independence, and digital literacy, and also increase the competitiveness of students in the labor market. This, in turn, has a positive impact on the achievement of the UN Sustainable Development Objectives, in particular, ensuring quality education, decent work and economic growth, and reducing socio-economic inequalities. Theoretically, the work expands the understanding of the processes of digitalization of education; practically, it offers effective methods and strategies for universities, and socially, it forms competent and ready-for-change specialists who are able to operate in the conditions of globalization and digital transformation of the economy.

Formulation of the article's objectives (task statement). The purpose of this article is to present an analysis of the impact of research on the formation of readiness of economic specialties students for learner autonomy using digital technologies on the achievement of the United Nations Sustainable Objectives and its impact on theory and practice and social impact, as well as to study how these processes can contribute to socio-economic changes at the global and local levels.

Presentation of the main research material. As part of the research on the influence of the formation of students' readiness for learner autonomy in economic specialties using digital technologies on the achievement of the Sustainable Development Objectives, a combination of methods was used for theoretical, empirical, and analytical-statistical levels.

At the theoretical stage, methods of analysis, synthesis, comparison, and generalization of scientific literature, regulatory documents, and international studies on autonomous learning, digitalization of education, and implementation of the objectives, in particular Objective 4, "Quality Education," were used. The modeling method allowed the formulation of a conceptual model of the development of students' learner autonomy in a digital educational environment, integrated with the principles of sustainable development.

At the empirical level, the study included a survey of students to determine the level of digital literacy, motivation for self-study, and awareness of the principles of sustainable development [12]. Semi-structured interviews with teachers and focus group discussions with students allowed us to identify barriers and incentives for digital autonomous learning.

The method of pedagogical observation of the performance of tasks on online platforms (e.g. Learningapps, Minecraft, Mindmaps, Mentimeter etc.) provided additional data on self-regulation and a responsible attitude to the educational process [13]. The pedagogical experiment included three stages: ascertaining – diagnostics of the initial level of autonomy; formative – purposeful use of digital tools to develop critical thinking and independence; control – repeated diagnostics of changes in the level of autonomy and awareness of educational activities in the context of the objectives.

Methods of mathematical statistics (mean values, variance, and correlation analysis) were used to process quantitative data, and content analysis of digital artifacts of students' activities (educational blogs, essays, digital portfolios etc.) allowed us to assess the level of self-regulation, reflection and understanding of educational activities as a factor of sustainable development [14].

The main results showed a significant increase in the level of learner autonomy, a positive correlation between digital competence and autonomy, and an improvement in students' self-regulation and reflection. The research has a direct impact on the implementation of the objectives, in particular Objective 4 "Quality Education"[2], supporting targets 4.3, 4.4, 4.5, 4.a and 4.c, which address accessibility, quality of education, development of key professional skills, inclusiveness, and teacher training.

In addition, the work contributes to the achievement of Objective 8 "Decent work and economic growth", Objective 9 "Industry, innovation and infrastructure" and Objective 10 "Reduced inequalities" through the development of digital competences, critical thinking, and independent problem-solving skills, increasing the

competitiveness of students in the labor market and creating an innovative and inclusive educational environment. The use of digital platforms and tools allows ensuring equal access to education for all students, regardless of their social or geographical status, which contributes to the implementation of target 10.2 [15,16]. Thus, the research demonstrates that the formation of readiness for learner autonomy of students of economic specialties through digital technologies not only increases the quality and accessibility of education, but also contributes to the development of key professional competencies, innovation, competitiveness and inclusion, making a significant contribution to achieving the UN Sustainable Development Objectives.

Conclusions. Thus, the study of the formation of readiness for learner autonomy of students of economic specialties by means of digital technologies, supported by a significant number of scientific publications and practical studies, makes a significant contribution to the development of pedagogical theory and educational practice. It allows for a deeper understanding of the mechanisms of integrating digital tools into the educational process, increasing the effectiveness of independent learning, developing critical thinking, digital literacy and self-regulation skills among students. The paper contributes to the achievement of the UN Sustainable Development Objectives, in particular in the direction of ensuring accessible and high-quality education (Objective 4), increasing competitiveness in the labor market and economic growth (Objective 8) and reducing socio-economic inequalities (Objective 10). The social impact of work is manifested in the preparation of competent, adaptive and ready-for-change specialists who are able to function effectively in the conditions of globalization and digital transformation of the economy, which, in turn, has a positive impact on the development of economic and social systems at the local and global levels. In addition, the results of the study provide practical recommendations for universities to optimize the educational process and implement digital methods that improve the quality of education and contribute to the formation of autonomous, responsible, and competitive graduates.

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