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УПРАВЛІННЯ ЗМІШАНИМ НАВЧАННЯМ У ЗАКЛАДАХ ВИЩОЇ ОСВІТИ ЯК ЧИННИК ЗНИЖЕННЯ ОСВІТНЬОЇ НЕРІВНОСТІ

Анотація. *У статті обґрунтовано доцільність розгляду управління змішаним навчанням у закладах вищої освіти як чинника зниження освітньої нерівності. Вихідною позицією дослідження є теза про те, що освітня нерівність у сучасній вищій освіті виявляється не лише через відмінності в академічних результатах, а й через нерівний доступ здобувачів освіти до цифрових ресурсів, педагогічної підтримки, стабільної комунікації, гнучких форм участі в освітньому процесі та індивідуалізованих можливостей просування в навчанні. Показано, що змішане навчання не має автоматичного вирівнювального ефекту. Його вплив залежить від того, як саме на інституційному рівні організовано цифрове середовище, платформну взаємодію, асинхронний доступ до матеріалів, зворотний зв'язок, підтримку викладачів і моніторинг навчальних труднощів. Метою статті є теоретично обґрунтувати управління змішаним навчанням як чинник зниження освітньої нерівності та визначити управлінські механізми, що забезпечують більш рівний доступ до ресурсів, взаємодії, підтримки і результатів навчання. У результаті дослідження встановлено, що антинерівнісний потенціал змішаного навчання реалізується через платформну узгодженість, стандартизацію цифрових курсів, логічно організований асинхронний доступ, підтримувальну педагогічну комунікацію, використання навчальної аналітики для раннього виявлення ризиків і розвиток цифрової та інформаційної готовності здобувачів освіти. Доведено, що за відсутності цілісного управління змішане навчання може не зменшувати, а посилювати вже наявні розриви між різними групами здобувачів освіти. Зроблено висновок, що управління змішаним навчанням слід тлумачити як систему стратегічних і організаційних рішень, спрямованих на розширення освітніх можливостей, підвищення доступності освітнього процесу та зниження освітньої нерівності. Практичне значення дослідження полягає в зміщенні уваги з окремих цифрових інструментів на інституційні умови їх справедливого та результативного використання.*

Ключові слова: *освітня нерівність; змішане навчання; управління змішаним навчанням; заклади вищої освіти; цифрове освітнє середовище; цифрові платформи; доступність освіти; здобувачі освіти.*

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MANAGING BLENDED LEARNING IN HIGHER EDUCATION INSTITUTIONS AS A FACTOR IN REDUCING EDUCATIONAL INEQUALITY

Abstract. *The article substantiates the feasibility of adopting blended learning management in higher education institutions to reduce educational inequality. The study is grounded in the idea that educational inequality in contemporary higher education is manifested not only through differences in academic achievement but also through unequal access of learners to digital resources, pedagogical support, stable communication, flexible forms of participation in the educational process, and individualized opportunities for progression in learning. It is shown that blended learning does not have an automatic equalizing effect. Its impact depends on how the digital environment, platform-based interaction, asynchronous access to materials, feedback, teacher support, and monitoring of learning difficulties are organized at the institutional level. The purpose of the article is to provide a theoretical substantiation of blended learning management as a factor in reducing educational inequality and to identify the managerial mechanisms that ensure more equitable access to resources, interaction, support, and learning outcomes. The study found that the anti-inequality potential of blended learning is realized through platform coherence, standardization of digital courses, logically organized asynchronous access, supportive pedagogical communication, the use of learning analytics for early risk identification, and the development of learners' digital and information readiness. It has been proven that, in the absence of coherent management, blended learning may not reduce but rather intensify the existing gaps between different groups of learners. It is concluded that blended learning management should be interpreted as a system of strategic and organizational decisions aimed at expanding educational opportunities, increasing the accessibility of the educational process, and reducing educational inequality. The practical significance of the study lies in shifting attention from individual digital tools to the institutional conditions of their fair and effective use.*

Keywords: *educational inequality; blended learning; blended learning management; higher education institutions; digital educational environment; digital platforms; accessibility of education; learners.*

Problem Statement. Educational inequality in higher education institutions is evident not only in differences in academic results but also in unequal access to digital resources, stable interaction with teachers, timely feedback, and flexible forms of participation in the educational process. In recent years, this problem has become more serious due to the pandemic, war-related risks, population displacement, technical instability, and varying levels of institutional readiness for the digital transformation of education [8; 13].

Under these conditions, blended learning should be considered not only as a combination of face-to-face and distance learning, but also as a way of organizing the educational process that can either reduce or reproduce existing inequalities. Its potential lies in providing access to materials at different times, supporting an individual's learning pace, expanding communication channels, and identifying learning difficulties in time. At the same time, the absence of coherent management of blended learning, common requirements for a digital course, a coordinated platform policy, and targeted support for learners may deepen the gap between different groups of participants in the educational process [2; 6].

The relevance of this problem is strengthened by the fact that research on the digitalization of education often focuses on individual tools, technologies, or pedagogical practices, while the managerial side of organizing blended learning is less systematically covered. However, it is managerial decisions that determine whether the digital environment will expand educational opportunities or, conversely, reinforce existing barriers. This is especially important in Ukrainian higher education, where the digital educational environment must be at the same time flexible, supportive, and resilient to crisis-related challenges [6; 7; 12].

Therefore, the scientific problem lies in the need to determine how the management of blended learning in higher education institutions can become a factor in reducing educational inequality, not at the level of declarations, but at the level of the real organization of access, interaction, support, and learner progress in the educational process.

Analysis of Recent Research. The problem of blended learning has long gone beyond a purely technological description and is now considered a complex pedagogical and organizational system. Studies on blended learning emphasize that its effectiveness depends not only on the combination of face-to-face and distance components, but also on the coherence of instructional design, the structure of interaction, assessment formats, and support for learners [3; 4]. At the same time, a number of studies stress that blended learning can improve flexibility, personalization, and accessibility, but these advantages become real only when institutional support and a clearly organized digital environment are in place [1; 5].

A separate group of studies examines digital inequality and its effects on learning outcomes. Researchers show that inequality in digital education is shaped not only by access to devices or the Internet, but also by differences in digital literacy, self-regulation, academic support, and the culture of using educational platforms [9; 10]. Therefore, digitalization by itself does not remove inequality. Without a well-designed organizational model, it may even deepen the gap between different groups of learners.

After the COVID-19 pandemic, researchers paid more attention to the resilience of educational systems, the quality of distance interaction, and the readiness of teachers and learners to work in a digital environment. The study by Rudenko et al. [8] showed that practicing teachers positively assessed some opportunities of online learning but also identified difficulties with communication, engagement control, and the organization of high-quality interaction, which are directly important for higher education as well. The study by Yurchenko et al. [13] noted stable growth in interest in platform-based solutions but also highlighted the need for a deeper understanding of the pedagogical conditions for their effective use. Attention has also been focused on features of the digital environment directly connected to reducing or increasing educational inequality. The study of partnership pedagogy in the digital learning environment leads to the conclusion that the quality of interaction, supportive practices, and pedagogical expectations influence learner engagement as much as the technical parameters of the platform [6]. The work on the development of youth information hygiene skills shows that access to digital resources does not guarantee their safe and effective use; therefore, university policy should take into account not only infrastructure but also the development of learners' information resilience [7]. The study of the educational potential of ChatGPT from learners' perspectives also highlights the dual effect of digital tools: they expand learning opportunities, but at the same time raise the issue of unequal access to the skills needed to use them effectively [2].

Also important for this article are studies that explain didactic mechanisms for improving the accessibility and effectiveness of digital learning. The paper on the synergistic effects of the visual approach and SMART education shows that diversity in how material is presented and instrumental flexibility increase the accessibility of learning for different groups of learners [12]. The material on media trauma, trust, and information verification in a frontline region once again shows that the modern digital environment cannot be analyzed outside the conditions of psychological vulnerability, information overload, and the need for support, which is important for universities working under crisis conditions [11].

Thus, the analysis of sources provides grounds for two conclusions. First, blended learning has the potential to reduce educational inequality through flexible access, varied forms of interaction, and the possibility of personalization. Second, this potential is not realized automatically but through managerial decisions at the higher education institution, including the selection and standardization of platforms, the organization of asynchronous participation, the monitoring of risk groups, support for teachers, and the creation of a supportive digital environment. This managerial dimension, despite related studies, still requires separate and systematic consideration.

The **purpose** of the article is to provide a theoretical justification for managing blended learning in higher education institutions as a factor in reducing educational inequality and to identify those managerial mechanisms that ensure more equal access of learners to resources, interaction, support, and learning outcomes. The focus is on the institutional organization of blended learning as an integral system that can either expand educational opportunities for different groups of learners or reproduce existing barriers.

To achieve this purpose, a set of interconnected **methods** was used. The theoretical analysis of scholarly works enabled the summary of approaches to understanding blended learning, digital inequality, and the management of the digital educational environment, and the identification of which features of the blended format are most often associated with a fairer organization of access to learning. The comparative analysis method was used to compare approaches in which blended learning is primarily described as a didactic model, and in studies that consider it an object of institutional management and the digital policy of an educational institution.

At the generalization stage, the method of interpretation and conceptual modeling was applied. On this basis, groups of managerial mechanisms with anti-inequality potential in blended learning were identified. This approach enables moving from the description of individual digital practices to an integrated vision of blended learning management as a mechanism for reducing educational inequality.

The study has a theoretical and analytical character. It does not present the results of a separate pedagogical experiment. Instead, it aims to provide a conceptual understanding of the problem based on modern scholarly sources and relevant Ukrainian studies.

Research Results. The analysis provides grounds for stating that the management of blended learning in higher education institutions should be considered a separate factor in reducing educational inequality, rather than merely as technical support for the digitalization of the university educational environment. Its influence is mainly seen in how the university organizes access to learning materials, structures interactions between teachers and learners, supports different learning paces, and identifies risk groups in a timely manner. If blended learning is implemented as a set of uncoordinated courses, platforms, and requirements, it increases the burden on learners and deepens the gap between those with higher levels of self-regulation, digital literacy, and technical support and those without these advantages. In contrast, under coherent institutional management, the blended format begins to function as a mechanism for equalizing opportunities, as it provides repeated access to materials, asynchronous participation, diverse communication channels, and greater transparency into learning requirements [1; 5; 9; 10].

The first result is that the anti-inequality potential of blended learning depends directly on platform coherence. When a higher education institution uses a single, conceptually integrated digital environment, learners receive not only technical convenience but also a predictable, logical workflow for courses. This reduces time losses from adapting to different interfaces, makes it easier to understand learning requirements, and creates more equal starting conditions for those with different experiences using digital resources. This is not only about the presence of an LMS or separate services, but about a managed platform policy that reduces the chaotic nature of digital interaction.

The second result concerns the role of asynchronous access in softening educational inequality. For learners who combine study with work, live under unstable security conditions, have problems with Internet connection, or are forced to interrupt their participation in face-to-face classes from time to time, the asynchronous component becomes a condition for staying involved in the educational process. This is not only about recording lectures or uploading presentations, but also about the presence of logically structured modules, explanatory materials, clear instructions, intermediate tasks, and the possibility of returning to difficult parts of the course. In such a model, blended learning reduces the dependence on one-time classroom presence or synchronous connections and, accordingly, promotes more equal participation. At the same time, systematic reviews show that without a well-designed online component, asynchronicity may turn into a form of hidden learner isolation, in which a person formally has access to the course but, in fact, does not receive sufficient support to move forward in learning [1; 5].

The third result is that reducing educational inequality in blended learning is impossible without supportive pedagogical interaction. The digital environment is not neutral with regard to learner participation. It either creates a feeling of inclusion, teacher availability, predictability of learning steps, and the right to make mistakes, or it increases distance and academic alienation. Research on partnership pedagogy in the digital learning environment shows that the nature of pedagogical expectations, communication style, and supportive interaction directly influence learner engagement and learning activity [7] This means that the management of blended learning should include not only technical regulations, but also institutional requirements for the quality of feedback, transparency of assessment, access to consultations, and pedagogical support.

The fourth result is that educational inequality in blended learning is increasingly determined not so much by primary access to technology as by differences in the ability to use the digital environment productively. This includes digital literacy, information hygiene, information verification skills, self-regulation, and the ability to work with new tools, including generative artificial intelligence. Research on the development

of youth information hygiene skills revealed a gap between the self-assessment of these skills and their real level, which points to the risk of hidden inequality: some learners believe they are ready for digital learning, although in fact they do not have sufficient strategies for safe and critical work with information [6; 7]. Similarly, the study of the educational potential of ChatGPT from a learners' perspective shows that the main benefits of new tools are received by those who already have better skills in prompt formulation, response evaluation, and integrating digital assistance into their own learning activities [2]. Therefore, the management of blended learning should include not only access to services, but also the institutional development of a culture of their thoughtful use.

The fifth result concerns the role of learning analytics and the early identification of learning difficulties. Blended learning creates wider opportunities for higher education institutions to observe the dynamics of learner participation, record interruptions in activity, timeliness of task completion, repeated mistakes, requests for help, and other indicators of risk. In this case, the management of blended learning shifts to preventive support. Its task is not to issue an academic failure statement at the end of the semester, but to identify early signs of dropping out of the educational process and initiate corrective actions. This logic enables transforming the digital environment from a space for placing materials into a space for pedagogical support. In such a model, the managerial decision directly influences the reduction of educational inequality, because support is provided not equally to everyone, but to those who really need it.

The sixth result is the clarification that blended learning may not reduce but deepen inequality. This happens when digital courses differ greatly in quality, teachers act without common guidelines, the number of platforms exceeds the limits of convenience, and responsibility for adaptation to the system is fully shifted to the learner. An additional risk arises when digital flexibility is formally declared but, in practice, the learner faces task overload, unclear deadlines, poorly explained requirements, and a lack of live communication. Data on the experience of online learning during the pandemic show that it is the quality of interaction organization, rather than the technological form itself, that determines participants' attitudes to digital learning and its effectiveness [8]. Therefore, the management of blended learning should remove not only technical barriers, but also organizational ones.

The generalization of the results obtained provides grounds for considering the management of blended learning as a decision-making system across several interconnected dimensions. The first dimension includes infrastructural and platform order. The second concerns the instructional design of digital courses and support for teachers. The third concerns pedagogical interaction, feedback, and the supportive character of the digital environment. The fourth includes developing learners' digital, information, and communicative readiness. The fifth provides for the use of learning analytics to support early risk identification and corrective action. It is the combination of these dimensions that forms the real anti-inequality effect of blended learning in a higher education institution.

Conclusions. The study showed that blended learning in higher education institutions should be considered not only as a combination of face-to-face and distance formats, but also as a system whose effectiveness is determined by the quality of institutional management. It is management that shapes the accessibility of the digital environment, the predictability of requirements, the stability of pedagogical interaction, and the possibilities for timely support of learners.

It was found that the anti-inequality potential of blended learning is connected with platform coherence, the standardization of digital courses, logically organized asynchronous access, supportive communication, the use of learning analytics, and the development of learners' digital readiness. In the absence of coherent management, blended learning may, on the contrary, deepen existing gaps.

Therefore, the management of blended learning should be understood as a system of strategic and organizational decisions aimed at making the digital environment work to expand educational opportunities rather than reproduce barriers. The practical significance of this approach lies in shifting the discussion of blended learning from the realm of technological novelty to that of fairness, accessibility, and the managed quality of the educational process. A prospect for further research is the empirical verification of which models of blended learning management in higher education institutions have the strongest influence on reducing educational inequality among different groups of learners.

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References

1. Boelens, R., De Wever, B., & Voet, M. (2017). Four key challenges to the design of blended learning: A systematic literature review. *Educational Research Review, 22*, 1-18. https://doi.org/10.1016/j.edurev.2017.06.001
2. Drushlyak, M., & Semenikhina, O. (2025). Educational potential of ChatGPT from students' perspective: The Ukrainian dimension of generative artificial intelligence use. *Information Technologies and Learning Tools, 109*(5), 186-201. https://doi.org/10.33407/itlt.v109i5.6289
3. Graham, C. R. (2006). Blended learning systems: Definition, current trends, and future directions. In C. J. Bonk, & C. R. Graham (Eds.), *The handbook of blended learning: Global perspectives, local designs* (pp. 3-21). Pfeiffer.
4. Horn, M. B., & Staker, H. (2015). *Blended: Using disruptive innovation to improve schools*. Jossey-Bass.
5. Rasheed, R. A., Kamsin, A., & Abdullah, N. A. (2020). Challenges in the online component of blended learning: A systematic review. *Computers & Education, 144*, Article 103701. https://doi.org/10.1016/j.compedu.2019.103701
6. Rudenko, Y., Drushlyak, M., Naboka, O., Proshkin, V., & Semenikhina, O. (2025). Development of youth information hygiene skills: The gap between the self-assessment and real state. In E. Smyrnova-Trybulska, N.-S. Chen, P. Kommers, & N. Morze (Eds.), *E-Learning and Enhancing Soft Skills*. Springer. https://doi.org/10.1007/978-3-031-82243-8_5
7. Rudenko, Y., Drushlyak, M., Shamonia, V., Diemientiev, Y., & Semenikhina, O. (2025). Partnership pedagogy and the Pygmalion effect in the digital learning environment. *2025 48th MIPRO ICT and Electronics Convention*, 735-740. https://doi.org/10.1109/MIPRO65660.2025.11131802
8. Rudenko, Y., Rozumenko, A., Kryvosheya, T., Karpenko, O., & Semenikhina, O. (2021). Online training during the COVID-19 pandemic: Analysis of opinions of practicing teachers in Ukraine. In Proceedings of the *44th International Convention on Information, Communication and Electronic Technology, MIPRO 2021* (pp. 626-630). https://doi.org/10.23919/MIPRO52101.2021.9596799
9. van Dijk, J. (2020). *The digital divide*. Polity Press.
10. Williamson, B., Eynon, R., & Potter, J. (2020). Pandemic politics, pedagogies and practices: Digital technologies and distance education during the coronavirus emergency. *Learning, Media and Technology, 45*(2), 107-114. https://doi.org/10.1080/17439884.2020.1761641
11. Yurchenko, A., Davydenko, D., & Semenikhina, O. (2026, February 16). Mediatrauma in the information environment and the role of information verification, trust, and coping in the frontline region. *OSF*. https://doi.org/10.17605/OSF.IO/7VNTB
12. Yurchenko, A., Riznyk, V., Shamonia, V., & Semenikhina, O. (2025). Mutual synergistic effects of visual approach and SMART education. *Educological Discourse, 49*(2), 6-14. https://doi.org/10.28925/2312-5829/2025.2.1
13. Yurchenko, A., Rozumenko, A., Rozumenko, A., Momot, R., & Semenikhina, O. (2023). Cloud technologies in education: The bibliographic review. *Informatyka, Automatyka, Pomiary w Gospodarce i Ochronie Środowiska, 13*(4), 79-84. https://doi.org/10.35784/iapgos.4421

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