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ОРГАНІЗАЦІЙНО-ПЕДАГОГІЧНІ ЧИННИКИ ОСВІТНЬОЇ НЕРІВНОСТІ У ЗМІШАНОМУ НАВЧАННІ ЗАКЛАДІВ ВИЩОЇ ОСВІТИ

Анотація. *У статті здійснено теоретичне узагальнення сучасних наукових підходів до осмислення змішаного навчання у закладах вищої освіти через призму освітньої нерівності. Вихідною є теза про те, що змішане навчання не слід розглядати лише як технічне поєднання очної та онлайн-роботи або як універсальний засіб підвищення гнучкості освітнього процесу. Показано, що його вплив на доступність освіти визначається не самим фактом використання цифрових платформ, LMS, Moodle чи вебсервісів, а якістю управлінських, координаційних і цифрово-педагогічних рішень, на основі яких вибудовується освітнє середовище. Метою статті є теоретичне узагальнення наукових джерел, присвячених змішаному навчанню, та виявлення тих організаційних, координаційних і педагогічних практик, які сприяють розширенню або звуженню освітніх можливостей різних груп здобувачів освіти. Методологічну основу дослідження становлять аналіз, синтез, порівняння, узагальнення та проблемно-тематичне групування сучасних наукових праць. Аналіз джерел дав підстави стверджувати, що бар'єри участі у змішаному навчанні мають технічний, організаційний, педагогічний і психологічний характер. Вони пов'язані зі складною навігацією цифрових курсів, фрагментацією платформ і каналів комунікації, перевантаженням асинхронною роботою, слабкою видимістю підтримки, недостатньою координацією між дисциплінами, а також із нерівномірною цифровою та інформаційною готовністю здобувачів освіти. Обґрунтовано, що значна частина цих бар'єрів виникає не лише через індивідуальні труднощі здобувачів освіти, а й через спосіб організації самого освітнього середовища, тому може розглядатися як показник інституційної спроможності закладу вищої освіти керувати змішаним навчанням. Узагальнення наукових праць дозволило виокремити практики, що знижують ризик освітнього виключення, зокрема структурну прозорість цифрового курсу, стабільну комунікацію, повторний і різноформатний доступ до матеріалів, формувальне оцінювання, координацію навантаження та своєчасну підтримку здобувачів освіти. Показано, що за відсутності цілісної організаційної логіки змішане навчання може не зменшувати, а посилювати освітню нерівність. Практичне значення статті полягає в уточненні орієнтирів для вдосконалення цифрового середовища, педагогічної взаємодії та інституційної координації у закладах вищої освіти.*

Ключові слова: *змішане навчання; освітня нерівність; заклади вищої освіти; цифрове освітнє середовище; доступність освіти; бар'єри участі; підтримувальні практики; цифрова готовність; педагогічне проєктування; інституційна координація.*

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ORGANIZATIONAL AND PEDAGOGICAL FACTORS OF EDUCATIONAL INEQUALITY IN BLENDED LEARNING AT HIGHER EDUCATION INSTITUTIONS

Abstract. *This article offers a theoretical synthesis of current scholarly approaches to understanding blended learning in higher education through the lens of educational inequality. It starts from the idea that blended learning should not be seen only as a technical combination of face-to-face and online instruction or as a universal way to make the educational process more flexible. The article shows that its effect on educational access depends not simply on the use of digital platforms, LMS, Moodle, or webinar services, but on the quality of managerial, coordination, and digital-pedagogical decisions that shape the learning environment. The purpose of the article is to provide a theoretical overview of research on blended learning and to identify the organizational, coordination, and pedagogical practices that either expand or limit educational opportunities for different groups of learners. The study is based on analysis, synthesis, comparison, generalization, and thematic grouping of recent academic publications. The review of sources suggests that barriers to participation in blended learning are technical, organizational, pedagogical, and psychological in nature. These barriers are linked to difficult course navigation, fragmented platforms and communication channels, overload from asynchronous work, low visibility of support, weak coordination across courses, and uneven levels of digital and information readiness among learners. The article argues that many of these barriers arise not only from individual learner difficulties but also from the way the learning environment itself is organized. For this reason, they can be treated as an indicator of an institution's capacity to design and manage blended learning in a consistent and purposeful way. The synthesis of scholarly publications also made it possible to identify supportive practices that reduce the risk of educational exclusion. These include clear course structure, stable communication, repeated and varied access to learning materials, formative assessment, workload coordination, and timely learner support. The article shows that when there is no coherent organizational logic, blended learning may intensify rather than reduce educational inequality. The practical value of the study lies in clarifying key directions for improving the digital environment, pedagogical interaction, and institutional coordination in higher education.*

Keywords: *blended learning; educational inequality; higher education institutions; digital learning environment; educational access; participation barriers; supportive practices; digital readiness; instructional design; institutional coordination.*

Problem Statement. The digital transformation of higher education has increased interest in blended learning as a way to organize the educational process, combining face-to-face interaction with online work, digital resources, and asynchronous activities. In academic research, blended learning is usually associated with flexibility, broader access to learning materials, more varied forms of participation, and greater opportunities for individualized learning [4; 11]. At the same time, recent studies show that the use of LMS, Moodle, webinar platforms, or other digital tools does not by itself guarantee educational access. What matters most is the structure of the digital course, the navigation logic, the alignment between synchronous and asynchronous work, the quality of support, and the institution's ability to address the needs of different learner groups [5; 18].

The problem is that blended learning is still often understood mainly as a tool for digitalization or organizational flexibility. With this approach, difficulties in participation are frequently attributed to the learner's individual lack of readiness, even though many of these difficulties are produced by the learning environment itself, including its fragmentation, overload, poor coordination, and limited visibility of support. Studies based on Ukrainian empirical data have also shown that online and blended formats are viewed ambiguously by participants in the educational process, while the quality of learning is linked not only to the availability of digital tools but also to the organization of interaction, the clarity of requirements, and the readiness of both teachers and learners to work under new conditions [15; 16]. This makes it necessary to examine blended learning through the lens of educational inequality, that is, as an environment in which barriers to participation may either be reduced or reproduced.

Review of Recent Research. In current academic literature, blended learning is viewed as one of the leading models for organizing the educational process in higher education institutions. Most researchers associate it with face-to-face interaction, online work, digital resources, and independent learner activity. At the same time, more recent studies increasingly interpret blended learning not as a mechanical mix of different formats, but as a pedagogically designed system in which digital tools should serve the logic of learning rather than define it. This approach is clearly presented in the study by D. Choi-Lundberg, K. Butler-Henderson, K. Harman, and J. Crawford, who emphasize that digital innovations in higher education are effective only when they are thoughtfully integrated into instructional design [4]. A similar position is taken by R. Mulenga and H. Shilongo, who link the potential of blended learning with flexibility and educational modernization, while also stressing the importance of organizational order and sound methodology [11].

A visible part of the literature focuses on the digital infrastructure of blended learning, especially learning management systems, digital platforms, communication services, and tools for organizing asynchronous work. These studies clearly show that LMSs, Moodle, and other digital solutions provide the technical foundation for blended learning, but they do not automatically ensure quality or accessibility in the educational process. P. D. Simon, J. Jiang, L. Fryer, R. B. King, and C. Frondozo note that the effectiveness of LMS use depends not only on the system's technical features, but also on how logically the course is structured, how communication and assessment are organized, and how access to materials is provided [18]. A similar idea appears in the work of T. Nguyen, Y.-F. Lee, T. H. Le, and H. B. N. Nguyen, where formative assessment in a blended environment is not treated as an extra option but as one of the tools for supporting learner engagement and motivation [12]. Thus, the current literature is already moving away from the simplified view of digital platforms as complete solutions in themselves.

Another group of studies focuses on teachers' professional readiness to work in blended learning settings. These works stress that effective blended learning requires more than the ability to use individual digital tools. It also requires the ability to design courses, organize supportive interaction, combine different learning formats, and help learners maintain self-regulation. This is the main point made by S. K. Amemasor, S. O. Oppong, B. Ghansah, B.-B. Benuwa and D. Essel, who highlight the role of long-term teacher professional development in digital education [1]. A. Roffi, G. Biagini, S. Cuomo, and M. Ranieri also show that competence in learning design and support for self-regulated learning is one of the important conditions for the successful functioning of blended models [13]. In this way, the literature increasingly connects the quality of blended learning with human and pedagogical factors rather than only with the presence of digital infrastructure.

A large body of publications is devoted to student engagement, formative assessment, self-regulation, and support in digital environments. These studies show that learner participation in blended learning depends on a clear learning path, timely feedback, the opportunity to return to materials, and the ability to see one's own progress. Z. Zhang and X. Huang found that adaptive gamified assessment can strengthen learner activity in blended learning [20]. F. Huang and S. Liu demonstrated that continued participation in asynchronous learning depends heavily on whether learners see the learning process as meaningful, useful, and engaging [6]. Therefore, the literature already offers strong evidence that a digital environment should be not only functional but also supportive.

Of special importance for this article are studies on digital equity, inclusion, and quality assurance in blended learning. These works emphasize that educational access in blended learning cannot be reduced only to the availability of devices, internet access, or a digital platform. C. Timbi-Sisalima, M.-L. Sánchez-Gordón,

J. Hilera-González, and S. Otón-Tortosa connect the quality of e-learning to accessibility and sustainability, arguing that the digital environment should be designed so as not to exclude those for whom the standard way of organizing learning is less accessible [19]. A similar line of thought can be found in the work of R. Espada-Chavarria, R. H. González-Montesino, J. L. López-Bastías, and M. Díaz-Vega, who view universal design as a foundation of inclusive higher education [5]. M. Matsieli and S. Mutula, in their analysis of digital transformation in higher education after the pandemic, also show that the issue of access goes beyond purely technical provision and is directly related to fairness, participation, and support [10].

The work of Ukrainian researchers helps clarify how participants in the educational process perceive online and blended learning, as well as the challenges related to digital and information readiness. These studies show that evaluations of online learning by teachers and learners are shaped not only by technical factors, but also by the organization of interaction, the clarity of requirements, and the quality of support [15]. Similar conclusions are drawn in the article by Rudenko et al. [16], which examines practicing teachers' views on online learning during the pandemic. Of particular importance is the study by Rudenko et al. [14], which identified a gap between self-assessment and the actual level of young people's information hygiene skills. This strengthens the understanding that participation in a digital learning environment also depends on the uneven readiness of its participants.

Overall, the review of recent research shows that current literature already provides substantial coverage of individual components of blended learning, including digital infrastructure, teacher professional development, student engagement, formative assessment, inclusive design, quality assurance, and the digital readiness of educational participants. At the same time, these areas are usually examined separately. Existing studies do not yet sufficiently integrate how the combined impact of organizational, coordination, and digital-pedagogical decisions shapes either the reproduction or the reduction of educational inequality in blended learning at higher education institutions. This research gap creates the need for a theoretical synthesis that treats blended learning not only as a modern model for organizing the educational process, but also as an environment that can either expand educational opportunities or create new barriers to participation.

The purpose of the article is to provide a theoretical synthesis of contemporary scholarly research on blended learning in higher education through the lens of educational inequality and to identify the organizational, coordination, and digital-pedagogical decisions that shape either the expansion or the limitation of educational opportunities for different groups of learners.

Purpose and Research Methods. The methodological foundation of the article is a theoretical analysis of recent scholarly sources devoted to blended learning, the digital transformation of higher education, educational access, inclusive design, student engagement, digital support, and organizational mechanisms of quality assurance. The study uses analysis, synthesis, comparison, generalization, and thematic grouping of sources. The body of literature includes works that enable examination of both the instructional potential of blended learning and the risks associated with fragmented digital environments, weak coordination, overload, and uneven access to educational resources.

Research Findings and Discussion. The analysis showed that in current research, blended learning is increasingly understood as a complex educational environment in which the key issue is not the use of separate digital tools, but the way these tools are combined pedagogically and organizationally. For this reason, the shift from a general theoretical description of blended learning to the analysis of its actual practices reveals the decisive role of managerial, coordination, and digital-pedagogical decisions. Without a coherent institutional logic, even well-developed digital infrastructure does not ensure positive outcomes [4; 7; 8].

The study found that the use of LMSs, Moodle, webinar services, or other digital tools is not, in itself, a sufficient indicator of educational access. If a digital course has difficult navigation, a fragmented structure, poorly aligned transitions between activities, and a growing number of tasks without a clear internal logic, participation becomes harder rather than easier [12; 18]. In such cases, technological usefulness loses its value without thoughtful pedagogy.

The literature analysis identified technical, organizational, pedagogical, and psychological participation barriers. Technical barriers include limited access to devices, the internet, and stable digital resources. Organizational barriers include an unclear course structure, too many communication channels, overload from asynchronous work, and weak coordination across courses. Pedagogical barriers include insufficient guidance, low visibility of support, vague requirements, and weak formative assessment. The psychological dimension manifests as loss of orientation, overload, and reduced involvement. Taken together, these difficulties show that many barriers are shaped not only at the level of the individual learner, but also by the organization of the learning environment itself [3; 10; 17].

At the same time, the review of scholarly publications identified supportive practices that genuinely reduce the risk of educational exclusion. These include a clear and transparent course structure, stable and predictable communication, repeated and varied access to materials, formative assessment, integrated forms of collaboration, workload coordination, and timely learner support [2; 9; 12; 20]. Of particular importance is the development of learners' digital and information literacy, since participation in blended learning depends

not only on access to technology but also on the ability to navigate digital environments, work critically with information, and sustain one's own learning [14].

The analysis also identified common managerial mistakes that weaken the potential of blended learning. These include a technocratic understanding of digitalization, fragmented platforms and communication channels, shifting responsibility for the quality of participation mainly onto the learner, layering digital activities without reviewing the overall workload, and weak use of feedback to improve the learning environment. This suggests that the quality of blended learning is determined not by the number of digital tools, but by how meaningfully they are integrated into a supportive institutional system.

The findings enable refinement of how blended learning in higher education should be understood in research. While some studies still treat blended learning mainly as a tool for flexibility and digital modernization, the present synthesis shows that this is not enough to explain learners' actual participation. Blended learning should instead be viewed as an institutionally organized system in which educational access depends on the quality of instructional design, coordination, and support.

This conclusion is consistent with studies that stress the importance of pedagogically grounded design, support structures, inclusion, and the quality of the digital environment [4; 8; 19]. At the same time, the present analysis makes it possible to show more clearly that barriers to participation cannot be explained only by low motivation or weak digital skills on the part of individual learners. Many of these barriers result from the way the learning path, communication, assessment, workload, and access to support are organized. For this reason, educational inequality in blended learning should be understood as a problem of institutional design quality.

Ukrainian studies further support this view. The works of Rudenko et al. [14-16] show that participants' perceptions of online learning, as well as the actual level of young people's information readiness, cannot be reduced to purely technical factors. This means that effective blended learning requires not only platforms, but also systematic work on digital culture, information literacy, pedagogical support, and predictable interaction.

Conclusions. The theoretical synthesis carried out in this study provides grounds for arguing that blended learning in higher education institutions should not be viewed solely as a technical combination of face-to-face and online instruction. Moving from a general description of blended learning to the analysis of its real practices has shown that its effect on educational access is shaped primarily by the quality of organizational, coordination, and digital-pedagogical decisions. These decisions determine whether blended learning expands educational opportunities or creates new barriers to participation for different groups of learners.

The study found that the use of LMSs, Moodle, webinar services, or other digital solutions does not, in itself, guarantee a reduction in educational inequality. If a digital course is fragmented, difficult to navigate, overloaded with asynchronous work, and does not provide clear support and coordinated communication, the digital environment may intensify rather than reduce participation difficulties. For this reason, technological usefulness and pedagogical usefulness in blended learning should be considered together.

It was also found that barriers to participation in blended learning are technical, organizational, pedagogical, and psychological. Many of them arise not only from individual learner difficulties, but also from the way the learning environment itself is organized. This makes it possible to treat such barriers as an indicator of an institution's capacity to design and manage blended learning in a purposeful way. In this regard, the development of learners' digital and information readiness becomes especially important as a condition for stable and conscious participation in digitally mediated learning.

The synthesis of scholarly literature also enabled the identification of supportive practices that genuinely reduce the risk of educational exclusion. These include a clear course structure, stable communication, repeated and varied access to materials, formative assessment, workload coordination, and timely learner support. The combination of such practices allows blended learning to perform not only an organizational function but also an inequality-reducing one.

The review of current research also showed that individual aspects of blended learning, including digital infrastructure, teacher professional development, student engagement, inclusion, and quality assurance, have already been widely discussed in the literature, but they are still often examined separately. Because of this, there is still a need for further syntheses that can explain in an integrated way how the combined influence of organizational, coordination, and digital-pedagogical decisions shapes either the reproduction or the reduction of educational inequality in blended learning at higher education institutions.

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