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CROSS-BORDER LEARNING IN THE CONTEXT OF GLOBAL EDUCATIONAL TRANSFORMATIONS

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Abstract

Relevance: The modern educational paradigm is undergoing a profound transformation driven by globalisation, digitalisation and increasing mobility. Traditional, geographically constrained models of education are being replaced by flexible networked systems. Despite extensive research into digital and distance learning, there remains a lack of a comprehensive theoretical framework that would explain the phenomenon of learning across geographical boundaries in the context of "physical" border crossings, particularly its systemic, social and political dimensions.

Objective: This study aims to substantiate the phenomenon of cross-border learning through a comprehensive analysis of European Union education policy and the contemporary international scholarly discourse on learning beyond borders.

Methods: The study is based on an interdisciplinary methodological framework that combines theoretical analysis, comparative methods, and the synthesis of international academic literature (2019–2026). It examines EU policy documents (e.g., the European Education Area, Erasmus+, and micro-credential initiatives) and integrates findings from recent scholarly publications indexed in Scopus and Web of Science. Conceptual modeling is applied to develop a structural representation of cross-border learning.

Results: The study identifies a fundamental shift from territorially bounded education systems to networked, relational learning environments. The development of the cross-border learning phenomenon is underpinned by: the emergence of spatial independence, institutional flexibility, and the transnational integration of policies as key dimensions of educational globalization; the growing role of digital platforms, micro-credentials, and global educational networks in shaping a "fluid" model of education; the transformation of academic mobility into hybrid and virtual forms; and the creation of European-level mechanisms (EQF, Europass, Erasmus+) that ensure comparability and recognition of learning outcomes across countries. A structural model of cross-border learning is proposed, consisting of five interdependent components: the digital learning environment, international academic mobility, transnational educational programs, micro-credentials and digital badges, global learning networks.

Conclusions: The findings of the study demonstrate that cross-border learning represents a systemic transformation of education rather than a mere technological expansion of distance learning. The proposed model contributes to theoretical advancement by conceptualizing education as a networked, post-territorial system with globally recognized learning outcomes. Practically, it provides a foundation for policy development and educational reform, which is particularly relevant for countries facing disruptions, such as Ukraine, by creating conditions for continuity, resilience, and the global integration of national education systems.

Keywords: cross-border learning, learning beyond borders, integration in education, transnational education, educational mobility

Introduction. The contemporary educational paradigm is undergoing a fundamental transformation driven by the synergy of globalization, rapid digitalization, and the unprecedented mobility of human capital. The traditional model of education, which for centuries has been tied to a specific location – whether a campus, national borders, or a physical classroom – is increasingly dissolving. In the context of the modern digital economy and global knowledge exchange, education is no longer a geographically bounded process but is evolving into a network that integrates diverse forms of learning, resources, and communities.

This process has become particularly salient in the first quarter of the twenty-first century, as the world has gradually transitioned from "emergency remote teaching" triggered by the COVID-19 pandemic (García-Morales et al., 2021, pp. 1–2) to more mature strategies such as hybrid-flexible learning (Detyna et al., 2023, pp. 147–148) and ubiquitous learning (Burbules, 2012, pp. 3–4). These models enable the integration of synchronous and asynchronous formats, the incorporation of adaptive learning technologies and artificial intelligence, and continuous access to educational resources from any location worldwide. Globalization erodes barriers to transnational knowledge exchange (Knight, 2010, pp. 43–44), while digitalization provides tools for implementing cross-border learning, thereby generating new challenges for national education systems (OECD, 2023, pp. 14–15). Today, these systems are compelled to compete not only domestically but also in the global education market, ensuring the quality, accessibility, and relevance of educational programs.

The concept of *learning beyond borders* has emerged as a conceptual response to the limitations of the term "distance learning." It encompasses not only the technical dimension of knowledge transmission but also the socio-cultural and legal deterritorialization of education. The essence of this phenomenon lies in the fact that the educational space is shaped not by the physical boundaries of a state or institution, but by digital ecosystems, professional communities, and the individual learning trajectories of learners (European Commission, 2025).

The transformation of the educational space today is manifested through three key dimensions:

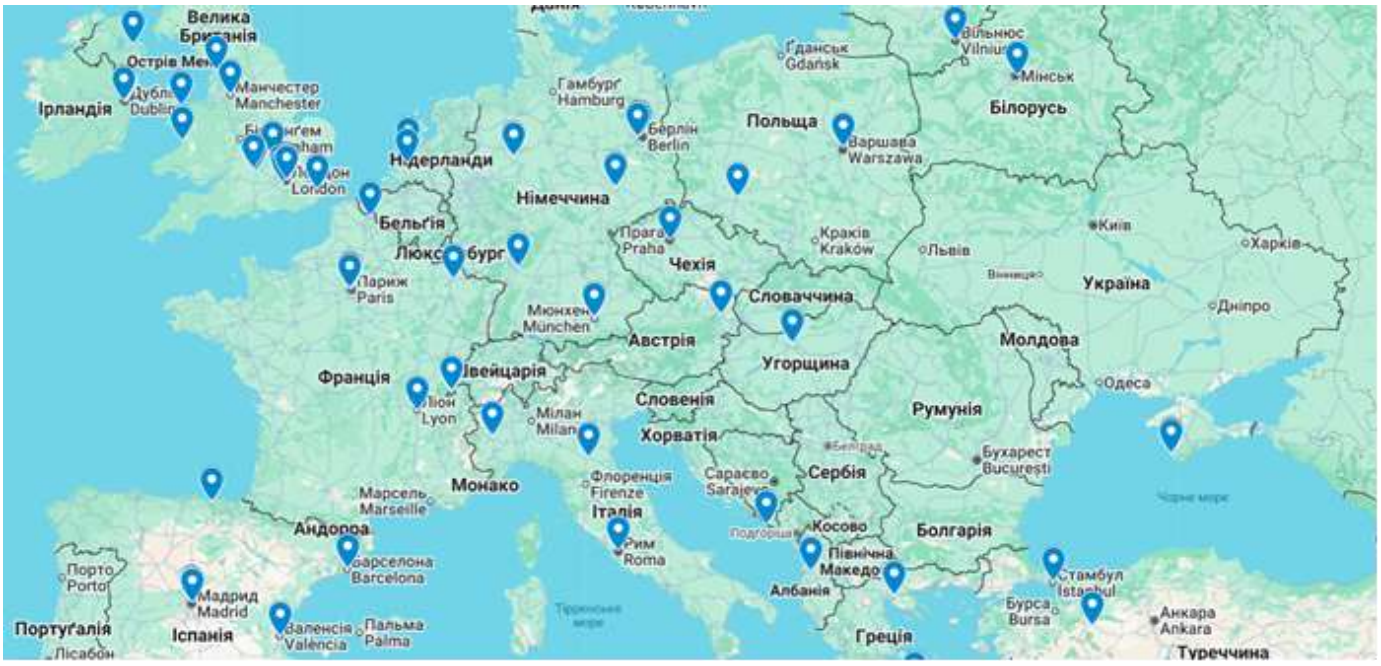
spatial independence (Heller, 2022, pp. 58–61) – students are able to access high-quality content (online courses, digital libraries, virtual laboratories, simulations, etc.) from leading universities worldwide without physical mobility;

institutional agility (Hurzhii et al., 2025, p. 34) – the traditional model of a classical degree is gradually being replaced by a system of micro-credentials (digital badges), accumulated from diverse sources and combined according to professional needs and individual development trajectories;

supranational educational space (Wang, 2025, p. 13) – educational zones are emerging that are not confined to the territory of a single state, with corresponding qualifications recognized in the international labor market (e.g., the European Higher Education Area).

Thus, *learning beyond borders* is not merely a technological innovation but a fundamental transformation in the way the educational process is organized, perceived, and socially embedded; it represents a new philosophy of education.

The scholarly discourse of the past five years (2021–2026) has focused on rethinking the notion of "place" in education and the role of digital technologies in ensuring the continuity of learning. Research by Wang (2025, pp. 1–2) emphasizes that the traditional territoriality of education is being strongly challenged by the development of transnational educational consortia; according to Kinser and Lane, as of March 2026, there are 387 international campuses worldwide (Cross-Border Education Research Team, 2026) (Fig. 1). García-Morales et al. (2021, pp. 1–2) highlight that digital transformation during periods of crisis has acted as a catalyst for the creation of flexible learning environments that do not require physical presence.



Note: Part of the map according to Cross-Border Education Research Team (2026).

Fig. 1. Global distribution of transnational educational hubs and international campuses in Europe

Particularly significant is the study by Pasichnyi et al. (2024, pp. 237–238), which analyzes the role of artificial intelligence in shaping personalized cross-border learning cloud-based classrooms. At the same time, Kwet (2019, pp. 3–4) draws attention to issues of social justice and access to such forms of education, raising concerns about the risk of "digital neocolonialism" due to the dominance of Western technological platforms. The evolution of blended learning formats and their legal status is examined by Zawacki-Richter and Jung (2023, p. 348), who propose the idea of global certification of knowledge beyond national licensing systems. Greer (2023) focuses on the "pedagogy of care," emphasizing the importance of support and interaction within deterritorialized learning environments.

Thus, contemporary conditions have generated a demand for *learning beyond borders*, where knowledge is often acquired outside the jurisdiction of any single state (through global platforms and micro-courses). This gives rise to the need for new legal instruments – micro-qualifications and blockchain-based digital certificates – that validate an individual's actual competencies, even when they do not fit within the rigid frameworks of interstate agreements.

At the same time, there remains a need to differentiate between the concepts of learning beyond borders and cross-border learning. This is primarily обусловлено the legal gap between the classical system of accreditation and the challenges posed by digital globalization. The legal dimension of cross-border learning is grounded in the norms of international law, such as the Lisbon Recognition Convention, and regulates formal mobility, including the recognition of qualifications, the licensing of foreign branch campuses, and the transfer of credits (ECTS).

For Ukraine, the issue of cross-border learning has become particularly critical as a consequence of the full-scale aggression. The large-scale internal and external migration of students and academic staff has effectively compelled the Ukrainian education system to adapt to a cross-border model. Research by Shparyk (2023, p. 87) demonstrates the resilience of Ukrainian educational systems through the implementation of cloud services and digital platforms. Vakaliuk et al. (2021, pp. 3–4) analyze the challenges of preserving identity and educational quality within virtual environments.

In this context, Lokshyna et al. (2025, pp. 42–44) substantiate the essence of integration processes in education, identify strategic priorities for European cooperation, and emphasize the development of innovative practices that ensure the continuity and quality of learning under conditions of deterritorialization. At the same time, the integration of Ukrainian "digital refugees" (Hurzhii et al., 2025, p. 35) into the global educational space – without the loss

of valuable human capital for the country – remains an open question.

The systematization of international research makes it possible to identify the following key directions: analysis of systematic reviews of distance learning with a focus on mobile technologies and adaptive platforms (Bond et al., 2021, pp. 15–17); critique of the commercialization of the educational space driven by global EdTech giants (Williamson et al., 2022, pp. 236–238); introduction of the concept of "Education Hubs" as new forms of the territorial organization of knowledge (Knight, 2018, p. 14); identification of the role of learning analytics in supporting students beyond physical campuses (Lang et al., 2022, p. 8); application of global education monitoring and substantiation of the role of technologies in ensuring learning continuity under crisis conditions (UNESCO, 2023, p. 40); analysis of the crisis of the traditional university in the context of global disruptions (Oleksiyenko et al., 2021, pp. 3, 6); determination of the effectiveness of MOOCs as a tool for the deterritorialization of professional development (Taranto et al., 2025, pp. 1–2); examination of cognitive aspects of information perception in online environments without attachment to a physical classroom (Reinhold et al., 2024, pp. 3–4); substantiation of the concept of "smart educational territories" based on digital infrastructure (Demir, 2021, pp. 31–32); and the emergence of ethical risks associated with the use of artificial intelligence in deterritorialized learning (West, 2023, p. 332).

Despite the considerable body of research, several critical gaps can be identified: the absence of a comprehensive theory of cross-border education, as most studies focus on tools rather than on the phenomenology of space and the state's responsibility toward learners; insufficient investigation into how professional identity and social capital are formed among students who do not attend a physical campus; a disconnect between the technological potential for learning beyond borders and the bureaucratic challenges of recognizing micro-credentials across different jurisdictions; and a lack of in-depth studies on the impact of cross-border learning on demographic security and the post-war recovery of the education sector.

Research Objective. The aim of this study is to substantiate the phenomenon of *cross-border learning* through a comprehensive analysis of European Union education policy and the contemporary international scholarly discourse on *learning beyond borders*. The research focuses on the conceptualization of cross-border learning as a new form of organizing the educational process that transcends geographical boundaries and is shaped by digitalization, internationalization, and the development of networked learning environments. Special attention is given to identifying the structural and functional characteristics of this phenomenon, as well as to uncovering the mechanisms that ensure its resilience and effectiveness in the context of global transformations.

The study is based on the hypothesis that cross-border learning represents a systemic and qualitatively new model of education, emerging from the integration of digital learning spaces, international academic mobility, transnational educational programs, micro-certifications, and global educational networks. It is assumed that the interaction of these components forms a coherent and adaptive system capable of ensuring continuity, accessibility, and quality of education, regardless of the physical location of students and instructors. Furthermore, the study hypothesizes that European Union policy plays a key role in shaping this model by promoting interaction, mutual recognition of learning outcomes, and the development of flexible learning trajectories within the European Education Area.

Methodology. The methodological framework of this study is based on an interdisciplinary approach that integrates theoretical, comparative, and analytical methods to investigate the phenomenon of cross-border learning within the contemporary educational landscape. Considering the complexity and multidimensional nature of the research object, the study combines elements of educational policy analysis, comparative education, and digital pedagogy.

At the conceptual level, the research is grounded in a systems approach, which allows cross-border learning to be examined as an integrated and dynamic system composed of interrelated components (von Bertalanffy, 1968, p. 4; Jandrić et al., 2022, p. 893). This approach enables the identification of structural elements, functional relationships, and patterns of interaction within the emerging model of education beyond territorial boundaries. In parallel, a synergistic approach is employed to understand the

processes of transformation and self-organization within the educational space under conditions of globalization and digitalization (Haken, 1983; Kraus et al., 2021, p. 157).

The theoretical foundation of the study is supported by a critical analysis of contemporary international scholarly discourse presented in publications indexed in Scopus and Web of Science. This includes peer-reviewed articles published since 2019 that address issues of digital transformation in education, internationalization, micro-credentials, and networked learning (Bond et al., 2021, pp. 3–4; García-Morales et al., 2021, pp. 2–5; Teixeira et al., 2019, pp. 6, 9; Jandrić & Hayes, 2024, p. 1). The selection of sources was based on relevance, citation impact, and alignment with the research objective, enabling the identification of dominant trends, conceptual approaches, and gaps in the existing body of knowledge.

A key methodological tool employed in the study is policy analysis. European Union strategic documents and initiatives in the field of education and training were examined to determine the regulatory and conceptual foundations of learning beyond borders and cross-border learning (European Commission, 2025). The analysis focused on identifying policy priorities related to digital education, academic mobility, lifelong learning, and the recognition of qualifications. This approach enabled the study to contextualize the phenomenon within the broader framework of the European Education Area and to assess the role of supranational governance in shaping new educational models. Additionally, the study employs elements of comparative analysis to examine similarities and differences in the interpretation and implementation of cross-border learning and learning beyond borders across various contexts (Bray et al., 2014, pp. 417–436).

An additional methodological dimension of the study involves the use of generative artificial intelligence systems, specifically ChatGPT and Google Gemini. These tools were employed as supportive instruments to enhance research efficiency and accuracy. In particular, they were used for the preliminary identification and selection of relevant peer-reviewed publications indexed in Scopus and Web of Science, based on the research topic. Moreover, generative AI facilitated the creation of visual schematic representations derived from the author's conceptual descriptions, contributing to the clarity of the proposed structural model. These tools were also utilized for translating academic content into English while maintaining terminological precision, as well as for assisting in formatting references in accordance with APA 7 standards. The application of these technologies was critically supervised by the author to ensure the validity, reliability, and academic integrity of all outputs.

Overall, the chosen methodology provides a coherent and rigorous framework for analyzing cross-border learning as a complex and evolving phenomenon. It enables not only the identification of its key characteristics but also the substantiation of its structural model and its significance within the context of global educational transformations.

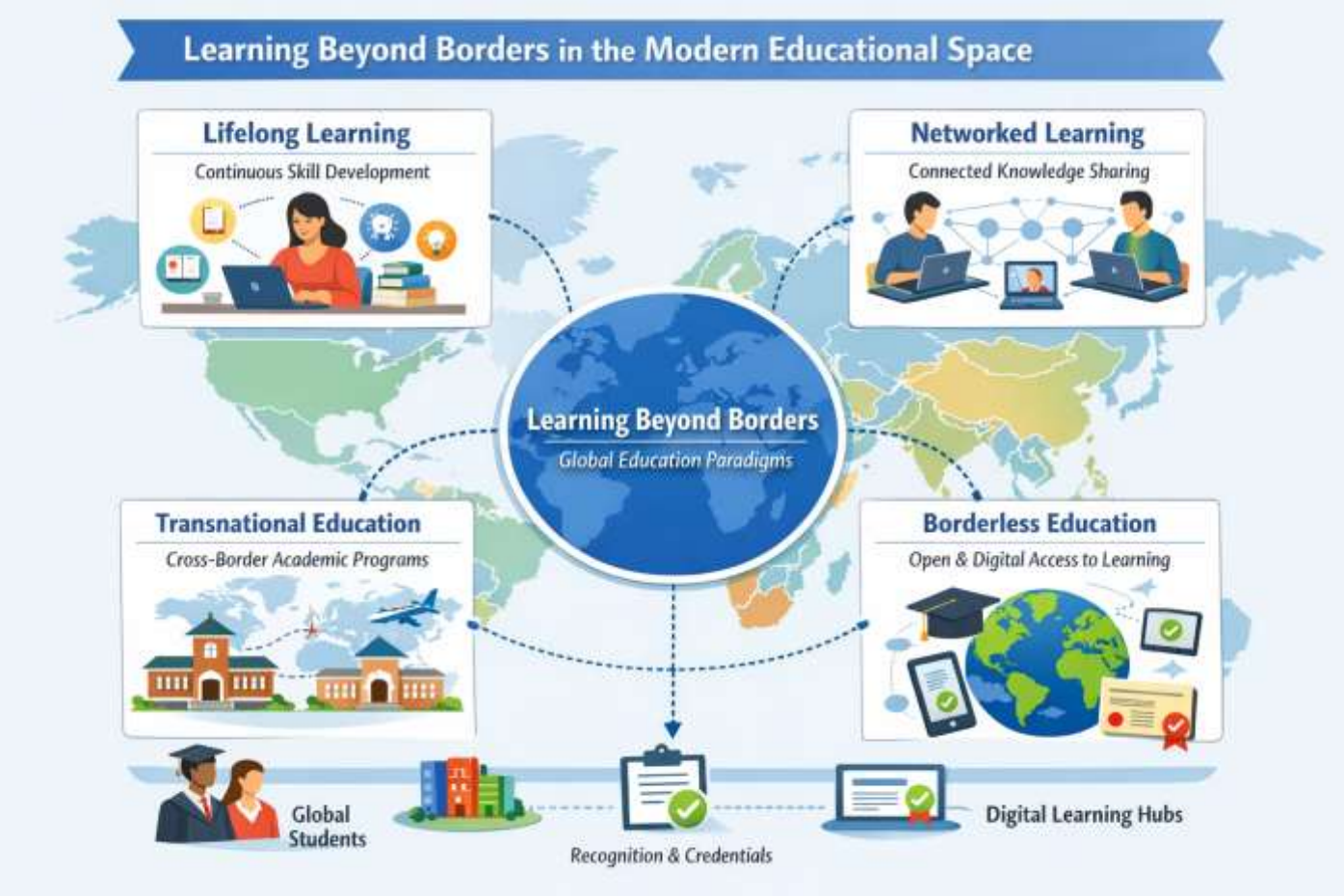
Results and Discussion. The traditional understanding of the educational space has long been based on the principles of geographical determinism, according to which access to quality education depended on the physical presence of the learner within a specific institution or educational center (Edwards & Usher, 2007, chapter 3). In contemporary conditions, this logic is undergoing significant revision. The educational space is increasingly taking on the characteristics of an open, dynamic, and multidimensional system, operating at the intersection of digital technologies, social practices, and global communications (Selwyn, 2021, pp. 496–497; García-Morales et al., 2021, p. 2).

We are currently witnessing a fundamental conceptual transformation of the notion of "area" – from a topological to a relational understanding. Whereas space was previously defined by physical coordinates, today it is shaped by networks of connections, access to resources, and the intensity of interactions among participants in the educational process (Jandrić et al., 2022, p. 883; European Commission, n.d.). Digital platforms, cloud services, and collaborative tools not only complement traditional forms of learning but effectively create a new educational reality, in which formal, non-formal, and informal learning are integrated (Zawacki-Richter & Jung, 2023, pp. 979–981).

In this context, globalization acts not only as an economic or cultural process but also as a factor driving the standardization and mutual recognition of educational outcomes (de Wit & Altbach, 2021, pp.

29–31). Transnational educational structures are emerging, within which knowledge, competencies, and qualifications circulate independently of national borders (Knight, 2012, pp. 27–28). As a result, there arises a need to update education, characterized by mobility, flexibility, and adaptability to the rapidly changing labor market (Brooks et al., 2024, p. 1663; Lang et al., 2022, p. 50).

Understanding the phenomenon of cross-border learning requires engaging with a range of conceptual directions in the development of contemporary philosophy of education – Learning Beyond Borders – which provide the theoretical foundation for innovations (Fig. 2).



Note: Created by ChatGPT based on the author's description.

Fig. 2. Learning Beyond Borders in the Modern Educational Space

In the digital era, the concept of lifelong learning is transforming from the idea of periodic professional development into a model of continuous presence within the educational environment (Wang & Wang, 2024). The individual is no longer tied to a specific stage of education they continuously update their knowledge through online courses, professional communities, and digital resources (Bozkurt et al., 2020, p. 39). Thus, education becomes integrated into everyday life, serving as a tool for adaptation to uncertainty and change (West, 2023, p. 29).

Within the framework of the *Networked Learning* concept, knowledge is understood as a distributed resource that exists in the interaction among people, digital tools, and information flows (Jandrić & Hayes, 2024, pp. 2–4). The educational process is organized not around an institution but around a network of connections (Lang et al., 2022, p. 39). This implies that the effectiveness of learning is determined not by location but by the quality of communication, collaboration, and the exchange of experiences among participants.

The *Transnational Education* approach focuses on the intersection of educational systems

across different countries (Knight & McNamara, 2017, p. 6). It encompasses joint educational programs, dual degrees, virtual campuses, and other forms of inter-university collaboration (Oleksiyenko et al., 2021, pp. 5, 7). Transnational education creates the conditions for the formation of a global educational market, where learners can select educational opportunities regardless of their physical location (de Wit & Altbach, 2021, pp. 34–35).

The concept of *Borderless Education* represents the most radical manifestation of the deterritorialization of education (Zawacki-Richter & Jung, 2023, p. 366). It entails minimizing the role of state and institutional constraints in accessing knowledge (Edwards & Usher, 2007, chapter 5). The development of digital technologies facilitates the creation of global competence recognition systems that operate beyond traditional educational structures (Williamson & Hogan, 2021, p. 41; Pasichnyi et al., 2024, p. 237).

Collectively, these concepts establish a new logic of educational development – learning beyond borders – in which the primary resource is no longer the institution but access to a knowledge network and the capacity to function effectively within it.

The transformation of the educational space is accompanied by a reconsideration of the role of territory. Whereas it previously served as the primary organizational principle of education, its significance is gradually diminishing today (Edwards & Usher, 2007, chapter 3). Territory ceases to be the determining factor in access to knowledge and becomes one of many contexts for educational activity (Bitar & Davidovich, 2024, p. 4).

One of the key trends is the functional transformation of the roles of faculties and schools. They no longer serve as the sole sites of learning but function as spaces for social interaction, practical activities, and the formation of professional communities (García-Morales et al., 2021, p. 4). Theoretical knowledge is increasingly acquired in digital environments (Bond et al., 2021, p. 15), while offline formats are used to develop soft skills and practical experience (Oukaci, 2025, p. 56).

Simultaneously, the phenomenon of virtual territoriality is emerging. Educational platforms and digital ecosystems establish their own rules, standards, and mechanisms for recognizing knowledge (Williamson et al., 2022, pp. 245–247). In this context, the *platformization of education* arises, whereby major technology companies become influential actors in educational policy (Moreno-González et al., 2025, p. 10).

At the same time, the deterritorialization of education holds significant inclusive potential. It expands access to learning for individuals previously constrained by geographic, physical, or social barriers (Overchuk, 2025). However, such transformation requires the development of new competencies for both learners and educators (Radkevych & Pryhodii, 2025, pp. 27–32).

The European Union's policy plays a crucial role in shaping the contemporary model of education, aiming to create an integrated educational space (European Commission, n.d.). One of the key directions is the development of transnational collaboration among universities, implemented through initiatives to establish European university alliances (de Wit & Altbach, 2021, p. 38). These alliances encompass not only academic mobility but also the integration of curricula, shared use of digital resources, and the establishment of common educational standards (Knight, 2018, pp. 6–8). As a result, a new type of educational institution emerges – the distributed university – which operates simultaneously in multiple countries and lacks clearly defined territorial boundaries (Heller, 2022, pp. 55–57).

EU policy actively supports the development of digital education, micro-credentials, and systems for the mutual recognition of learning outcomes (European Commission, 2024; Hurzhii et al., 2025, pp. 30–31). This creates the conditions for an educational space in which learners can freely combine educational trajectories (Haas & Hadjar, 2020, p. 1101).

Thus, the European trajectory of educational development facilitates the shift from nationally oriented systems to a globally integrated model (de Wit & Altbach, 2021, pp. 31–33), in which territorial boundaries give way to networked structures. For Ukraine, this opens opportunities for integration into the European educational space while simultaneously raising questions regarding the preservation of national educational identity and competitiveness in the global environment.

Contemporary European Union educational policy is based on the gradual transition from

coordinating national educational systems to establishing a holistic transnational ecosystem, operating on the principles of mutual recognition, digital integration, and mobility (European Commission, 2020a, pp. 10–12; European Commission, 2023a). In the face of current global challenges, the EU views "extraterritoriality" not as a threat to national identity but as a strategic tool for enhancing competitiveness in the global talent market (European Commission, 2023b).

The European Education Area (EEA) concept, aimed at 2025, has become a central political vector for the development of education beyond national borders. It seeks to remove structural barriers to the free movement of knowledge, skills, and learners, while fostering an integrated educational space (European Commission, n.d.).

During the implementation of the EEA Concept, two main directions are distinguished:

1. *Integration of educational systems*. Through the European Universities Initiative, transnational alliances are being established that provide joint educational programs, dual degrees, and mobility without the need for full physical relocation. This facilitates the shift from institutional autonomy to a networked model of university functioning (Lambrechts et al., 2024, p. 1228; European Commission, 2022b).

2. *Automatic mutual recognition of learning outcomes*. EU policy envisages the introduction of mechanisms for the automatic recognition of qualifications and study periods, minimizing administrative barriers between countries and creating a unified educational space (European Commission, 2023a).

In the context of cross-border learning, educational mobility occupies a special place. Within EU policy, it has evolved from predominantly physical relocation to hybrid and virtual formats. The Erasmus+ program (2021–2027) plays a key role in shaping a new model of mobility that combines physical and digital participation in transnational educational practices (European Commission, 2022a).

In the contemporary European educational space, learner mobility is undergoing a significant transformation, shifting from traditional forms of physical relocation to flexible, digitally supported, and integrated models. This necessitates the systematization of key aspects of educational mobility, reflecting its new functional role within the context of transnational learning (Table 1).

Table 1.

Key dimensions of educational mobility in the European educational space

Aspect of educational mobility	Description	Key instruments / initiatives
Flexible learning pathways	Erasmus+ is transforming from a traditional exchange programme into a mechanism for developing shared educational standards and teaching practices, fostering transnational competences and flexible learning trajectories (Helm & van der Velden, 2021, p. 24; European Commission, 2022a, p. 6).	Erasmus+ (2021–2027)
Digital recognition tools	Europass Mobility enables the documentation and recognition of learning outcomes acquired across different countries and formats, including online learning. Its digitalisation enhances transparency and trust in the labour market (European Commission, 2021, p. 3).	Europass Mobility
Integrated student services	The European Student Card initiative supports the development of a "European digital campus", providing learners with access to educational resources and services across multiple institutions (European Commission, 2026).	European Student Card

One of the key instruments of educational deterritorialization is the implementation of micro-credentials, as established in the Council Recommendation on the European approach to micro-credentials (European Commission, 2024). The adoption of micro-credentials transforms the logic of education in three main aspects:

1. *Decentralization of learning outcomes*. Micro-credentials enable the recognition of learning outcomes independently of the institutional context, promoting modularity and personalization of educational pathways (Wheelahan & Moodie, 2021, pp. 212–213).

2. *Portability of educational capital*. The use of digital certificates (European Digital Credentials for Learning) ensures rapid verification of qualifications and their independence from a specific educational institution (Nomden & Mazar, 2023, p. 4; Teixeira et al., 2019, p. 6).

3. *Formation of the Education-as-a-Service model*. Education is gradually shifting towards a service-oriented model, where learners combine learning modules from various sources according to their individual needs (Teixeira et al., 2019, p. 4).

The functioning of a deterritorialized educational space requires the development of unified frameworks that ensure the comparability, transparency, and portability of qualifications across national systems. In the European context, this role is primarily fulfilled by the European Qualifications Framework (EQF), which operates as a meta-framework, harmonizing diverse national qualification structures through a common system of levels based on learning outcomes (Europass, n.d.).

Within this architecture, transparency is achieved through a set of interrelated mechanisms.

First, the comparability of qualifications is ensured by mapping national frameworks to the EQF, allowing educational achievements obtained in different countries to be interpreted within a single semantic structure. This significantly enhances both academic and professional mobility, reducing uncertainty in the recognition of competencies (Pereira et al., 2025, pp. 1590–1591).

Second, the digitalization of recognition procedures is implemented through the Europass ecosystem, which integrates tools for documenting, self-assessing, and presenting skills and qualifications. This transforms static educational records into dynamic lifelong digital profiles that reflect the evolution of an individual's competencies (European Commission, 2020b).

Third, the increasing automation of recognition procedures facilitates the validation of formal, non-formal, and informal learning outcomes. Digital platforms provide faster and more reliable verification mechanisms, supporting the formation of a globalized knowledge market in which competencies, rather than institutional affiliation, constitute the primary unit of value (Kiiskilä et al., 2023, pp. 2, 12).

Overall, these instruments lay the groundwork for the transition from territorially constrained educational systems to a more flexible and interoperable model, in which learning outcomes can circulate freely across borders with minimal institutional barriers.

To substantiate the concept of cross-border learning, it is necessary to move beyond a purely technical description of tools and focus on the ontological shift in the educational process. Whereas traditional education systems were based on a "container" model, where knowledge was confined within the walls of institutions and national standards, the contemporary state is described through the complex notion of "post-digital territoriality" (Jandrić et al., 2022, pp. 879–880). In this new paradigm, educational space is understood not as a physical location but as a dynamic relational network (Rubanets, 2021, p. 40).

The need to distinguish cross-border learning as an independent concept is driven by three fundamental shifts:

1. Decoupling of experience and jurisdiction. A contemporary learner may physically reside in one country, be officially enrolled at a university in another, and acquire actual knowledge through a global platform registered in a third jurisdiction (Williamson & Hogan, 2021, pp. 41–44). This creates an unprecedented situation in which the territory of the state ceases to be the sole guarantor of educational quality. As Miño-Puigcercós et al. (2026) emphasize, the governance of education is gradually shifting from national governments to transnational algorithms and corporate digital ecosystems, necessitating a rethinking of the concept of educational sovereignty.

2. Transition to "atopic" learning. Unlike distance education, which is often perceived merely as a digital "replica" of classroom learning, cross-border learning is fundamentally atopic it has no single "home" location (Edwards & Usher, 2021, chapter 5). Researchers note that knowledge in this model exists in a state of continuous circulation between digital hubs, virtual laboratories, and

professional networks (Heller, 2022, pp. 43–47). This confirms a fundamental change in the role of territory: from an organizational center, it becomes one of many contexts that the individual integrates into their personalized learning trajectory (Teixeira et al., 2019, p. 10).

3. Cognitive mobility and educational nomadism. This phenomenon is underpinned by the emergence of a new type of subject – the "digital nomad" – for whom learning is not preparation for work in a specific geographical location but a means of continuous existence within the global networked society (Cohen & Hannonen, 2026, pp. 5–7). In this context, physical borders become merely administrative barriers, which can be effectively overcome through mechanisms of transparency and decentralization. The EQF and micro-credentials systems play a key role here, allowing traditional degrees to be "unpacked" into portable digital units (Pereira et al., 2025, p. 1613; Wheelahan & Moodie, 2021, pp. 221–223).

Furthermore, for Ukraine, the justification of this phenomenon carries a critical security dimension. Extraterritoriality enables the preservation of the nation's intellectual capital and educational sovereignty even in the event of partial loss of control over physical infrastructure or mass population displacement (Voronina-Pryhodii, 2024, pp. 42–43). This transforms the concept of cross-border learning from a theoretical abstraction into a strategic-political instrument for the survival and recovery of the educational system under conditions of global turbulence.

Based on the conducted analysis and taking into account the transformation of the educational space, the following definition is proposed: *Cross-border learning* is a contemporary form of organizing the educational process, which involves crossing national or regional borders and integrating the digital, institutional, and social dimensions of learning. It combines formal, non-formal, and informal learning into a dynamic relational network, where learners' knowledge and competencies circulate among digital platforms, educational institutions, and organized groups of learners. Learning can occur remotely through online courses, international exchange programs, and digital services, ensuring the continuity of the educational process regardless of learners' physical location and traditional territorial constraints.

Thus, Cross-border learning refers to the processes of making foreign education "legitimate" or formally recognized in another country, whereas Learning Beyond Borders pertains to making education "accessible" and "effective" regardless of learners' geographical location (Table 2).

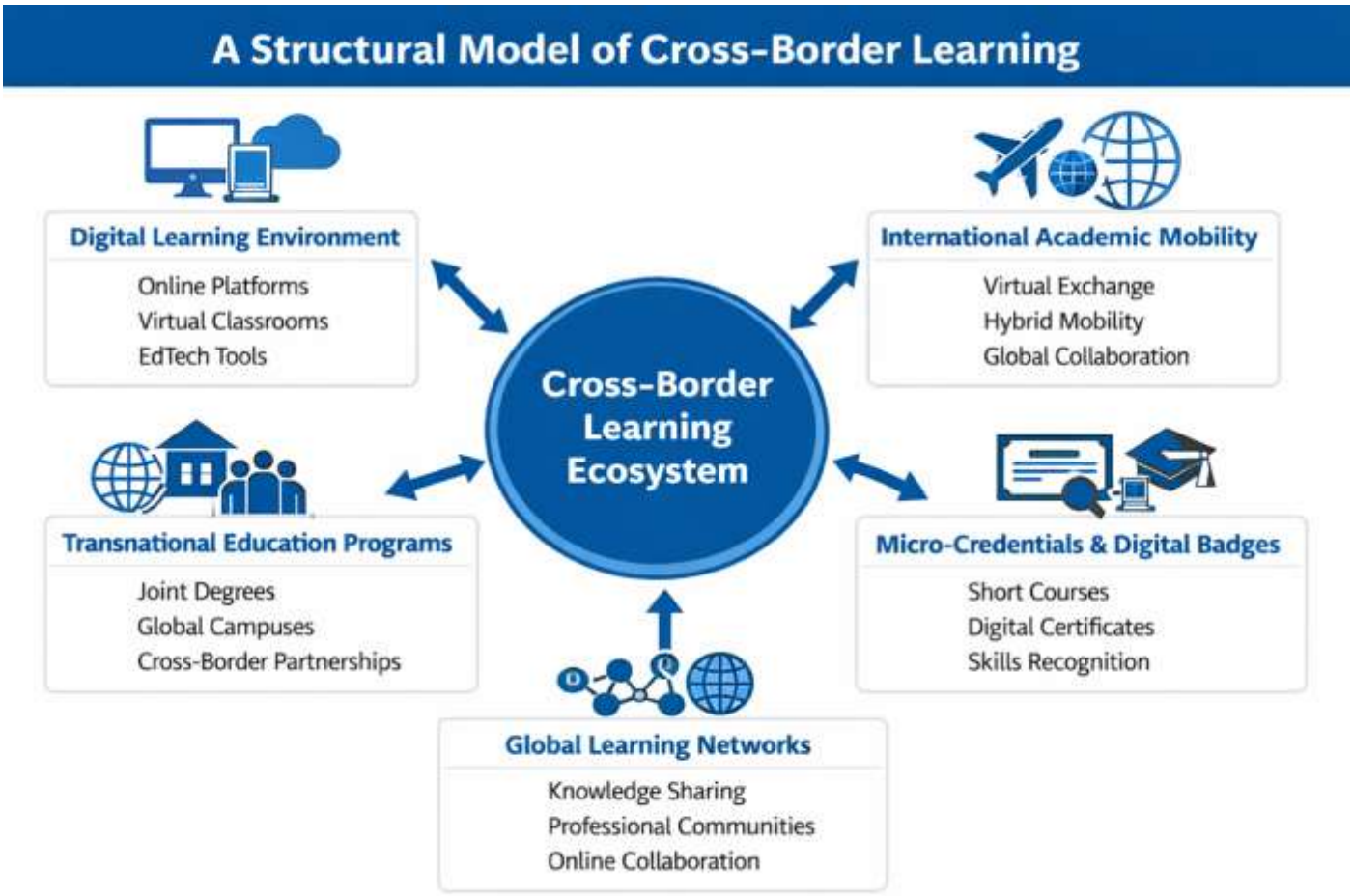
Table 2.

Comparative characteristics of the regulatory-legal and conceptual aspects of Cross-border Learning and Learning Beyond Borders

Comparison Criterion	Cross-Border Learning	Learning Beyond Borders
Legal nature	Administrative: based on interstate agreements and conventions.	Socio-ethical: based on the human right to access knowledge.
Regulatory object	Crossing physical or digital borders (mobility of programs/students).	Removal of artificial barriers (linguistic, social, technical).
Recognition mechanism	Nostification: official validation of a diploma by state authorities.	Competency validation: recognition of actual skills (Badges, Micro-credentials).
Key document	Institutional license, state diploma, ECTS transcript.	Portfolio, digital certificate, professional reputation.
Role of the state	Regulator, ensuring the quality and legality of educational services.	Facilitator, ensuring free access to infrastructure.
Main challenge	Bureaucratization and complexity of qualification recognition procedures.	Lack of universal legal standards for non-formal education.

A logical continuation of the theoretical analysis of cross-border learning is the construction of its structural model, which enables a shift from describing trends to a systematic understanding of

the mechanisms underlying this educational reality. If it has been previously demonstrated that the contemporary educational space is transforming into a networked, relational, and deterritorialized system, the next step is the conceptualization of the internal architecture of this process. The proposed structural model of cross-border learning reflects not only the collection of its elements but also their functional interactions within the framework of the new educational paradigm (Fig. 3).



Note: Created by ChatGPT based on the author's description.

Fig. 3. A Structural Model of Cross-Border Learning

The model is based on the assumption that cross-border learning is not a separate form of education but an integrative environment in which the digital, institutional, and social dimensions of the educational process are combined. This environment is structured as a multi-level system, where each component performs a specific function while simultaneously interacting continuously with the others. Such an approach aligns with contemporary understandings of education as a complex adaptive system operating within a globalized and digitalized context (Jandrić et al., 2022, p. 902; Jandrić & Hayes, 2024, p. 6).

The first component of the model is the *Digital Learning Environment*, which serves as the foundational infrastructure of cross-border learning. Unlike the traditional understanding of digital technologies as auxiliary tools, in this model they perform a system-forming function. The digital environment ensures the continuity of learning, provides access to resources, and enables interaction regardless of the geographical location of educational actors. Research indicates that the development of cloud services, adaptive platforms, and learning analytics systems creates conditions for personalized and flexible learning that does not require physical attachment to an educational institution (García-Morales et al., 2021, p. 6; Hulai et al., 2023, pp. 174–175). Simultaneously, the digital space establishes a new "virtual territoriality," within which its own rules, norms,

and interaction mechanisms are formed (Fragoso et al., 2011, pp. 212–215).

The second component is *International Academic Mobility*, which, under the conditions of educational deterritorialization, transforms from spatial movement into a functional characteristic of the educational process. Mobility is no longer limited to physical travel abroad; it encompasses virtual exchanges, joint online courses, and participation in transnational educational projects. This approach aligns with the concept of mobility as an international component integrated into the very structure of educational programs (Helm & van der Velden, 2021, p. 89). In this context, mobility functions as a mechanism for integrating the individual into the global educational space, fostering intercultural competencies and expanding educational opportunities (Heller, 2022, p. 49).

The third component is *Transnational Educational Programs*, which provide the institutional level of cross-border learning. They establish organizational frameworks for collaboration between educational institutions from different countries and form the basis for the mutual recognition of learning outcomes. In contemporary conditions, such programs are increasingly implemented in the form of joint or dual degrees, virtual campuses, and inter-university alliances (Muravytska, 2023, pp. 8–10; Altbach & de Wit, 2021, pp. 35, 38–39). Importantly, these institutional forms are gradually losing strict territorial attachment and operate as distributed systems that combine the resources and expertise of various educational environments (Oleksiyenko et al., 2021, pp. 8–9).

The fourth component – *Micro-Credentials and Digital Badges* – provides mechanisms for recording, accumulating, and recognizing learning outcomes in a cross-border environment. Conditions of flexible and modular learning require new forms of competency validation that are not limited to traditional diplomas. Micro-credentials allow educational outcomes to be "fragmented" into separate modules, which can be acquired in different contexts and combined according to individual needs (Wheelahan & Moodie, 2021, p. 212). Digital certificates, in turn, ensure their portability and transparency, creating prerequisites for the development of a global skills market (Teixeira et al., 2019, p. 3; Kiiskilä et al., 2023, p. 3). Thus, this component performs an integrative function, combining diverse educational trajectories into a unified system.

The fifth component of the model is *Global Learning Networks*, which reflect the social dimension of cross-border learning. In a networked society, knowledge is created and disseminated through interaction among educational participants rather than solely transmitted from teacher to student. Therefore, the effectiveness of learning largely depends on the quality of communication, collaboration, and engagement within professional communities (Jandrić & Hayes, 2024, pp. 3–6). Global networks facilitate the exchange of experiences, the development of social capital, and the support of learners in the absence of a physical campus. In this context, the development of ethical and pedagogical approaches to interaction in digital environments is also crucial, including the concept of the "pedagogy of care" (Greer, 2023).

Conclusions. Cross-Border Learning focuses on the technical and geographical dimensions of education – it concerns how knowledge or students physically cross national borders. In contrast, Learning Beyond Borders represents a much broader philosophy, aiming to remove not only borders on the map but also mental, social, and cultural barriers. If the first term describes the "route" of learning, the second denotes its boundless "worldview," where access to development depends solely on one's curiosity rather than on place of residence or formal constraints.

A key feature of the proposed Cross-Border Learning model is that its components do not function in isolation but form an integrated system of interdependencies. The digital educational space provides the technological foundation for mobility, transnational programs give institutional shape to this mobility, micro-credentials record its outcomes, and global networks create an environment for interaction and development. As a result, a closed cycle is formed in which each element reinforces the others, ensuring the overall resilience and adaptability of the system.

From a theoretical perspective, this model reflects the transition from an institutional to a networked logic of educational organization. While the educational process was previously concentrated within a single institution, it is now distributed

across various environments, platforms, and communities. This aligns with the concept of "fluid education," in which the boundaries between formal, non-formal, and informal learning gradually blur (Chiang & Karjalainen, 2022, pp. 992–993). At the same time, such a transformation brings new challenges, including ensuring the quality of education, data protection, equitable access to digital resources, and the legal recognition of learning outcomes (Williamson et al., 2022, pp. 251–253; West, 2023, p. 284).

In practical terms, the proposed model is particularly relevant for countries undergoing socio-economic or political transformations. It enables the continuity of education even under conditions of limited access to physical infrastructure, while also facilitating the integration of national education systems into the global space. For Ukraine, this implies not only the capacity to adapt to challenges related to war and migration but also the potential to leverage these conditions as a catalyst for modernizing the education system and integrating it into the EEA. Specifically, the development of the digital educational space, the implementation of micro-credentials, and participation in transnational programs can contribute to enhancing the international competitiveness of Ukrainian education (Lokshyna et al., 2025, pp. 11, 33; Radkevych et al., 2025, pp. 5–9; Hlushko, 2024, p. 24).

Thus, the structural model of cross-border learning reflects the comprehensive transformation of education in the 21st century. It integrates key trends of globalization, digitalization, and networked knowledge organization, offering a holistic vision of the educational process beyond traditional territorial constraints. Further research and practical implementation of this model open up prospects for developing new approaches to educational organization that emphasize flexibility, accessibility, and global integration.

Conflict of Interest

The author certifies that no conflict of interest (financial, professional, or personal) exists that could have influenced the objectivity of the research results or conclusions. The integrity of the double-blind peer review process was ensured through a mandatory declaration of the absence of conflict of interest submitted via the journal's editorial system. This protocol guaranteed complete author anonymity and the independence of the expert evaluation throughout the entire editorial cycle.

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НАВЧАННЯ «ПОЗА ТЕРИТОРІЯМИ» В КОНТЕКСТІ ГЛОБАЛЬНОЇ ТРАНСФОРМАЦІЇ ОСВІТИ

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Реферат:

Актуальність: Сучасна освітня парадигма зазнає глибокої трансформації, зумовленої глобалізацією, цифровізацією та зростанням мобільності. Традиційні територіально обмежені моделі освіти замінюються гнучкими мережевими системами. Незважаючи на широкі дослідження цифрового та дистанційного навчання, залишається брак комплексної теоретичної бази, яка б пояснювала феномен навчання за межами територій у контексті «фізичного» перетину кордонів, зокрема його системні, соціальні та політичні виміри.

Мета: Дослідження спрямоване на обґрунтування феномену навчання «поза територіями» (транскордонного навчання) шляхом аналізу освітньої політики Європейського Союзу та сучасного міжнародного наукового дискурсу у порівняння з доктриною навчання без кордонів.

Методи: Дослідження базується на міждисциплінарній методологічній базі, що поєднує теоретичний аналіз, порівняльні методи та синтез міжнародної академічної літератури (2019–2026). У дослідженні розглядаються політичні документи ЄС (наприклад, Європейський освітній простір, Erasmus+, ініціативи щодо мікрокредитів) та інтегруються висновки нещодавніх наукових публікацій, індексованих у Scopus та Web of Science. Концептуальне моделювання застосовується для розробки структурного представлення навчання «поза територіями».

Результати: Дослідження визначає фундаментальний перехід від територіально визначених освітніх систем до мережевих, реляційних навчальних середовищ. Основою для розвитку феномену навчання «поза територіями» є: поява просторової незалежності, інституційної гнучкості та транснаціональної інтеграції політик як ключових вимірів глобалізації освіти; зростаюча роль цифрових платформ, мікроакредитацій та глобальних освітніх мереж у формуванні «флюїдної» моделі освіти; трансформація академічної мобільності в гібридні та віртуальні форми; створення механізмів європейського рівня (EQF, Europass, Erasmus+), які забезпечують порівнянність та визнання результатів навчання у різних країнах. Запропоновано структурну модель навчання «поза територіями», що складається з п'яти взаємозалежних компонентів: цифровий освітній простір, міжнародна мобільність, транснаціональні програми, мікроакредитації та глобальні мережі.

Висновки: Результати дослідження демонструють, що навчання «поза територіями» є системною трансформацією освіти, а не технологічне розширення дистанційного навчання. Запропонована модель сприяє теоретичному прогресу, концептуалізуючи освіту як мережеву, посттериторіальну систему з юридичним визнанням результатів навчання на світовому рівні. Практично вона забезпечує основу для розробки політики та освітньої реформи, особливо актуальної для країн, які стикаються з потрясіннями, таких як Україна, щодо створення умов для безперервності, стійкості та глобальної інтеграції національних систем освіти.

Ключові слова: *навчання «поза територіями» (транскордонного навчання), навчання без кордонів, інтеграція в освіті, транснаціональна освіта, освітня мобільність*

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