



СЕКЦІЯ 2. ТЕОРІЯ І ПРАКТИКА НАВЧАННЯ

UDK [37.014.6:005.6]:004

DOI <https://doi.org/10.32999/ksu2413-1865/2026-115-3>**PEDAGOGICAL POTENTIAL OF BENCHMARKING
IN THE CONDITIONS OF DIGITAL TRANSFORMATION OF EDUCATION**

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Relevance of the Study. The article is devoted to highlighting the problem of pedagogical potential of benchmarking in the conditions of digital transformation of education. The relevance of the research is determined by the need to find effective mechanisms for ensuring the quality of education in the conditions of active implementation of digital technologies and the formation of the digital educational space of higher education institutions. It has been established that the digitalization of education contributes to the modernization of the content, forms and methods of education, the expansion of access to educational resources, the development of digital competences and the improvement of educational communication. The purpose of the article was to substantiate the pedagogical potential of benchmarking in the conditions of digital transformation of education, to reveal the peculiarities of the implementation of the benchmarking approach to increasing the efficiency and quality of the educational process. To achieve this goal, methods of analysis, synthesis, generalisation, and systematisation of scientific sources were employed. **Research Methods.** The study employed theoretical methods, including analysis, synthesis, generalisation, and systematisation of scholarly and regulatory sources on educational digitalisation, digital transformation, quality assurance, and benchmarking. Comparative analysis was used to examine international experience and to identify opportunities and barriers related to digital benchmarking in education.

Results. Benchmarking was defined as a systematic process of searching for, analysing, comparing, and adapting effective educational practices. The analysis showed that digital platforms, cloud services, open educational resources, electronic databases, and professional networks expand opportunities to compare educational practices, disseminate innovation, support teachers' professional development, and improve educational content and organisation. The study also identified implementation barriers in Ukraine, including uneven digital infrastructure, limited resources, insufficient awareness of benchmarking methodology, and the absence of systematic mechanisms for sharing effective practices. **Conclusions.** Benchmarking has considerable pedagogical potential as a quality improvement tool in a digitally transformed educational environment. Its effective use requires critical adaptation rather than mechanical transfer of external practices. Further development should focus on methodological guidance, evaluation criteria, professional educational networks, international cooperation, and national mechanisms for disseminating effective educational practices.

Keywords: *benchmarking, digitalisation of the educational environment, quality of education, innovative digital technologies, teachers' professional development.*

**ПЕДАГОГІЧНИЙ ПОТЕНЦІАЛ БЕНЧМАРКІНГУ
В УМОВАХ ЦИФРОВОЇ ТРАНСФОРМАЦІЇ ОСВІТИ**

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Стаття присвячена висвітленню проблеми педагогічного потенціалу бенчмаркінгу в умовах цифрової трансформації освіти. Актуальність дослідження зумовлена потребою в пошуку дієвих механізмів забезпечення якості освіти під час активного впровадження цифрових технологій і формування цифрового освітнього простору закладів вищої освіти. Зазначено, що цифровізація сприяє



оновленню змісту, форм і методів навчання, розширенню доступу до освітніх ресурсів, розвитку цифрових компетентностей та вдосконаленню взаємодії між учасниками освітнього процесу. **Мета дослідження.** Мета статті полягала в обґрунтуванні педагогічного потенціалу бенчмаркінгу в умовах цифрової трансформації освіти, розкрити особливості впровадження бенчмаркінгового підходу щодо підвищення ефективності освітнього процесу та забезпечення його якості. **Методи дослідження.** Для досягнення поставленої мети застосовано аналіз, синтез, порівняння, узагальнення та систематизацію наукових і нормативних джерел із проблем цифровізації освіти, забезпечення її якості та впровадження бенчмаркінгового підходу. Порівняльний аналіз використано для вивчення міжнародного досвіду цифрового бенчмаркінгу, а узагальнення – для визначення його педагогічних можливостей, проблем упровадження та перспектив подальшого розвитку. Результати дослідження. Уточнено сутність бенчмаркінгу як систематичного процесу пошуку, аналізу, зіставлення й адаптації успішних освітніх практик. Встановлено, що цифрові платформи, хмарні сервіси, електронні бази даних, відкриті освітні ресурси та професійні мережі розширюють можливості застосування бенчмаркінгу в освіті. Їх використання забезпечує доступ до інноваційного педагогічного досвіду, сприяє професійному розвитку педагогів, удосконаленню змісту освіти та модернізації освітнього процесу. Проаналізовано міжнародний досвід цифрового бенчмаркінгу та визначено основні труднощі його впровадження в Україні, зокрема нерівномірний розвиток цифрової інфраструктури, обмеженість ресурсного забезпечення, недостатню обізнаність педагогів із методологією бенчмаркінгу та відсутність системного механізму поширення успішних освітніх практик. **Висновки.** Бенчмаркінг має значний педагогічний потенціал для забезпечення якості освіти в умовах її цифрової трансформації. Його результативне застосування передбачає не механічне запозичення, а критичний аналіз і адаптацію освітнього досвіду відповідно до потреб конкретного закладу освіти. Перспективи подальшого розвитку бенчмаркінгу пов'язані з розширенням використання цифрових платформ, формуванням професійних освітніх мереж, активізацією міжнародної співпраці та створенням системних механізмів поширення успішних практик.

Ключові слова: бенчмаркінг, цифровізація освітнього простору, якість освіти, цифрові інноваційні технології, професійний розвиток педагогів.

Problem Statement. The current stage of educational development is characterised by active digital transformation affecting every component of the educational process, including curriculum content, teaching methods, the organisation of learning activities, the assessment of learning outcomes, and institutional governance. Digitalisation creates new opportunities to improve educational quality, increase access to educational resources, personalise learning, and develop learners' professional competences. At the same time, it places new demands on the effectiveness of educational processes, the soundness of pedagogical decisions, and the continuous improvement of educational practice.

The importance of developing digital competence in Ukraine is established in several regulatory documents. The Concept for the Development of Digital Competences states that the rapid growth of digital technologies and the introduction of innovative solutions in different spheres of public life require the preparation of professionals capable of working effectively in a digital economy (Kabinet Ministriv Ukrainy, 2021). The Law of Ukraine on Education identifies information and communication competence as a key competence of a modern person, in line with European approaches to lifelong learning (Verkhovna Rada Ukrainy, 2017).

The need to raise the population's level of digital literacy is also reflected in the State Strategy for Regional Development for 2021–2027, which identifies low levels of digitalisation and digital skills among the factors constraining national

development (Kabinet Ministriv Ukrainy, 2020). The Concept for the Development of the Digital Economy and Society of Ukraine likewise recognises the development of digital competence as a priority for national modernisation and competitiveness.

The experience of European Union countries confirms that citizens' digital competence is an important prerequisite for economic growth, innovation, and successful integration into the global digital space. Therefore, the development of digital skills has become a major priority of Ukraine's national education policy.

Under these conditions, approaches designed to improve educational quality and align it with the requirements of a digital society are particularly relevant. Benchmarking occupies an important place among such approaches because it enables systematic comparison of educational practices, identification of successful experience, adaptation of effective solutions, and their implementation in response to the needs of a specific educational institution. Unlike traditional approaches to quality evaluation, benchmarking focuses not only on recording results but also on the continuous improvement of educational processes through the analysis of effective practices (Okhrimenko, 2016).

Despite considerable scholarly attention to educational digitalisation and quality assurance, the use of benchmarking as a pedagogical tool in a digitally transformed educational environment remains insufficiently explored. Particular attention is needed to determine how benchmarking can improve the educational process, support



the development of learners' professional competences, and enhance the assessment of learning outcomes in digital environments.

Accordingly, the pedagogical potential of benchmarking in the digital transformation of education and its prospects as a quality assurance instrument require further investigation.

Analysis of Recent Research and Publications. The digital transformation of education and the introduction of innovative pedagogical approaches have received substantial attention from Ukrainian and international researchers. Educational digitalisation is generally understood as the renewal of the content, forms, methods, and tools of learning through digital technologies, electronic resources, and distance learning platforms.

L. Havrilova, O. Holovko, S. Karpliuk, P. Khobzei, O. Khomeriki, A. Marei, D. Tapscott, Ya. Topolnyk, and other scholars describe educational digitalisation as a response to the demands of the information society and global technological trends. Y. Zou, F. Kuek, W. Feng, X. Cheng emphasise that the digital transformation of learning is a natural stage in the evolution of the information age and reflects current directions of technological development (Zou, et. al, (2025).

Educational digitalisation has also been studied by O. Buinytska, L. Kartashova, L. Lishchynska, N. Morze, and other researchers. Nevertheless, the effective integration of digital technologies into higher education remains relevant because of organisational, technical, and methodological challenges. I. Kovalchuk (2022) emphasises the need to develop the digital literacy of all participants in education and to introduce contemporary digital tools to improve learning quality. The researcher also highlights the importance of digital platforms, cloud services, artificial intelligence, and interactive tools for personalising learning, widening access to resources, and improving pedagogical interaction.

A. Bramhane (2024) view digitalisation as an objective consequence of the development of the information society and an important condition for modernising the educational system. They associate its implementation with a digital educational environment that facilitates interaction, expands access to learning resources, and supports innovative pedagogical technologies. Digital technologies therefore function both as learning tools and as drivers of educational development and transformation (Demianchuk, Bodnaruk, 2022). A. Huraliuk (2021) regards digitalisation as part of the broader process of digital transformation and as a major organisational and pedagogical condition for improving educational quality. It widens access to educational resources, modernises the educational environment, and creates new opportunities for the professional development of all participants in education.

According to L. Petrova, O. Sivik, I. Petrov, educational digitalisation involves the integrated use of digital technologies, electronic resources, distance learning platforms, and innovative methods to improve learning effectiveness, expand access to educational services, and develop the digital competence of educational stakeholders (Petrova, et. al, 2025).

A separate strand of research addresses benchmarking as a tool for improving educational practice. The literature defines benchmarking as a process of identifying, analysing, and adapting effective practices to improve the performance of educational institutions (Diahyeva, 2024).

However, the use of benchmarking in the digital transformation of education remains underexplored. Further theoretical work is needed to clarify its pedagogical potential and its application to improving educational processes within the digital environments of higher education institutions. This gap supports the need to identify effective ways of using benchmarking as an educational quality assurance tool.

The **purpose of the article** is to provide a theoretical analysis of the pedagogical potential of benchmarking in the context of the digital transformation of education and to explain how the benchmarking approach can improve the effectiveness and quality of the educational process.

Research Methods. The study used theoretical analysis, synthesis, generalization, and systematization. Scholarly and regulatory sources were examined to clarify the concepts of educational digitalization, digital transformation, and benchmarking. Comparative analysis supported the examination of international experience, while synthesis and generalization were used to identify the pedagogical opportunities, implementation barriers, and future directions of digital benchmarking in education.

Presentation of the Main Material. The rapid spread of digital technologies affects every sphere of human activity, including education. The development of a digital society, advances in information and communication technologies, globalization, and the growing volume of information require traditional approaches to the organization of education to be reconsidered. Digitalization and digital transformation have therefore become strategic directions for the development of educational systems in many countries.

An analysis of scholarly sources indicates that educational digitalization and the digital transformation of education are related but not identical concepts. Educational digitalization refers to introducing digital technologies, electronic learning resources, information and communication tools, and digital platforms into learning activities. Digital transformation involves comprehensive changes to educational content, forms, methods, and technologies, as well as to educational organization



and institutional governance, using digital technologies (Herhanov, Yarmaki, 2021).

Educational digitalization is both a technological and a pedagogical process. It encompasses the modernization of the educational environment, renewal of educational content, improvement of teaching methods, and development of the digital culture of educational stakeholders. Digital transformation creates conditions for personalized learning, wider access to educational resources, academic mobility, and continuity of education (Korniat, 2022).

A major trend is the growing use of distance and blended learning platforms, cloud services, mobile applications, virtual and augmented reality, and artificial intelligence. These solutions provide access to educational resources regardless of learners' location, facilitate personalized learning and independent work, and improve educational communication. Opening educational platforms and electronic libraries also expand opportunities for lifelong learning and professional development (Yurzhenko, 2024).

Digital technologies support interactive and personalized learning, learners' motivation, digital and information literacy, critical thinking, and information management skills. They also create new opportunities for cooperation, exchange of experience, project work, and innovative educational practices.

Educational digitalization represents a contemporary stage in the informatization of education. It involves equipping educational environments with digital devices, services, and systems and enabling electronic interaction among all participants. The resulting digital or cyber-physical educational space creates new opportunities for learning, communication, governance, and professional development (Bramhane, 2024). At the same time, researchers identify challenges related to institutional infrastructure, stakeholders' digital literacy, and the need to adapt traditional pedagogical approaches to digital educational environments (Kovalchuk, 2022).

Within this context, benchmarking has value as a means of searching for, analyzing, and adapting effective pedagogical practices in higher education. Its pedagogical potential lies in the systematic comparison of educational processes, improvement of educational content and methods, identification of effective approaches to learning organization, and adoption of innovative governance solutions suited to institutional needs. Benchmarking requires critical reflection and creative adaptation rather than the simple transfer of external experience (Gunasekaran, 2002). Robert Camp is widely associated with the development of the benchmarking concept and described it as a continuous process of learning from leading practice to achieve competitive advantage. The theory was further developed by

A. Gunasekaran, H. Chen, N. Zepke, G. Neutze, L. Leach, and other scholars who treated benchmarking as a tool for quality management and organizational development.

Digital technologies substantially extend the educational applications of benchmarking. Digital platforms, open educational resources, professional networks, and international educational communities provide institutions with access to a wide range of innovative practices. This access supports the dissemination of successful experience, professional collaboration, and the introduction of contemporary pedagogical technologies (Chen, 2002). Benchmarking enables the systematic improvement of educational content, forms, and methods through the analysis and adaptation of effective practice. Detailed examination, critical reflection, and context-sensitive implementation can foster an innovative culture, enhance teachers' professional competence, and modernize the educational process (Diahyleva, 2024).

The advantages of benchmarking in education are most apparent in its contribution to improving educational processes and assuring quality. It enables institutions to identify and disseminate effective educational practices and to draw on approaches whose performance has already been demonstrated (Zepke, 2014).

Benchmarking can also improve educational quality through systematic analysis of institutional experience and comparison with the achievements of other institutions. Such comparison supports evidence-informed managerial and pedagogical decisions and helps establish a culture of continuous improvement.

In addition, benchmarking stimulates pedagogical innovation, professional development, and wider professional contacts. The exchange of experience among educational institutions creates conditions for introducing modern pedagogical technologies, digital tools, and effective models of educational organization (Yurzhenko, 2024).

Benchmarking becomes particularly significant in a digitally transformed educational environment because digital platforms and open educational resources simplify access to leading experience and accelerate information exchange. These conditions support the modernization of educational environments, institutional competitiveness, and the quality of educational provision.

The rapid development of digital technologies further expands the practical possibilities of educational benchmarking. Digital platforms, cloud services, electronic databases, open educational resources, and professional networks provide timely access to information about effective educational practices and innovative approaches to learning organization (Kovalchuk, 2022). Higher education institutions can search for, analyses, and compare educational experience at both national and international levels.



One of the central functions of benchmarking is to identify, analyze, and disseminate innovative educational practice. The systematic study of leading institutions helps determine effective educational models, teaching methods, pedagogical technologies, and approaches to organizing education. This work can improve teaching, learning, and assessment systems and stimulate the search for new ways to enhance educational quality.

Benchmarking also contributes to teachers' professional development. Engagement with effective practice, professional communities, international projects, and exchanges of pedagogical experience develops professional competence, innovative thinking, and readiness to introduce contemporary educational technologies. It therefore supports continuous professional learning, teachers' self-development, and the adoption of educational innovation.

Effective implementation depends in part on digital platforms and educational networks. Modern digital resources provide access to extensive educational information and facilitate communication and cooperation among teachers, researchers, and institutions in different countries. Moodle, Google Classroom, Microsoft Teams, Coursera, edX, FutureLearn, and other resources support educational organizations while also enabling users to examine how successful practices operate across educational systems. Professional networks and online communities disseminate innovative ideas, contemporary teaching materials, and effective models of learning organization.

International experience indicates that digital benchmarking can support educational quality assurance and innovation. In the European Union, the United States, Canada, and Australia, benchmarking mechanisms are used to monitor educational outcomes, evaluate digital strategies, and introduce contemporary pedagogical technologies. UNESCO, the OECD, and the European Commission contribute comparative analyses of educational systems and recommendations on digital transformation and disseminate effective practice. International university rankings, open databases, and academic cooperation networks likewise enable institutions to compare their performance and adopt appropriate managerial and educational solutions.

In Ukraine, however, several barriers continue to affect the implementation of benchmarking. These include uneven digital infrastructure, limited resources, insufficient awareness of benchmarking methodology among academic staff, and the absence of systematic mechanisms for studying and disseminating effective educational practices.

Ukraine's integration into the European Education Area, the development of digital technologies, and the growing role of international cooperation

nevertheless create favourable conditions for the further development of educational benchmarking. Promising directions include wider use of digital platforms, stronger professional education networks, participation in international projects, national systems for sharing innovative experience, and mechanisms for monitoring and evaluating educational quality through benchmarking.

Thus, benchmarking can contribute to the modernization and quality of education in a digitally transformed environment. Its pedagogical potential lies in the systematic study, analysis, and context-sensitive adaptation of effective educational practices. These activities support teachers' professional development, the introduction of innovative technologies, the competitiveness of higher education institutions, and the development of contemporary digital educational environments.

Conclusions. In the context of the digital transformation of education, benchmarking can serve as an effective tool for improving educational quality and supporting innovative pedagogical practice. Its use facilitates the systematic study, analysis, and adaptation of successful educational experience and creates conditions for improving educational content, assessment systems, teaching methods, and the effectiveness of educational processes.

Digital platforms, open educational resources, professional networks, and international educational communities expand the practical possibilities of benchmarking by providing timely access to innovation and supporting professional cooperation. Its pedagogical potential is reflected in the development of teachers' professional competence, the innovative culture of educational institutions, and modern digital educational environments.

Further research should define methodological principles for implementing benchmarking in higher education institutions, establish criteria for evaluating its effectiveness, and examine how digital technologies can support the dissemination and adaptation of effective educational practices.

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Дата першого надходження статті до видання: 03.08.2026
Дата прийняття статті до друку після рецензування: 01.09.2026
Дата публікації (оприлюднення) статті: 26.10.2026