

ҚАЗІРГІ БІЛІМ БЕРУ МӘСЕЛЕСІ ПРОБЛЕМЫ СОВРЕМЕННОГО ОБРАЗОВАНИЯ

IRSTI 14.35.19

DOI: <https://doi.org/10.59102/pedagogical/2026/iss3pp3-12>

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ADVANCEMENT OF DIGITAL COMPETENCE IN UNIVERSITY EDUCATORS WITHIN THE CONTEXT OF BLENDED LEARNING

This research provides an in-depth examination of digital competence among university educators, highlighting a critical exploration into the effective integration and challenges of digital technologies in the educational process. Utilizing a mixed-methods approach that encompasses both surveys and in-depth interviews, with a particular focus on a case study from Karaganda, the study reveals significant insights into the educators' proficiency with digital tools, their self-assessed effectiveness in leveraging technology to enhance student engagement, and the confidence in utilizing digital educational platforms. The findings underscore the necessity for ongoing professional development to adapt to the rapid advancements in Information and Communication Technologies (ICT), pointing out the obstacles faced during the transition to blended learning and the strategies employed to overcome them. The research emphasizes the importance of access to self-education resources and professional development opportunities, as well as the benefit of sharing experiences among peers for the successful incorporation of digital technologies into teaching methodologies. By offering a novel perspective on the digital readiness and the associated challenges of educators in the context of higher education, the study contributes valuable insights towards enhancing digital competence, underlining its significance in improving educational quality and preparing students for the digital economy.

Keywords: digital competence, university educators, blended learning, educational technology, teacher professional development, e-learning, digital literacy, higher education

INTRODUCTION

In the current era of rapidly advancing digital technologies and evolving educational paradigms, the enhancement of digital competence among university faculty members has become particularly pertinent. During the Republican Congress of Educators held on October 5, 2023, under the leadership of President Kassym-Jomart Tokayev, several strategic directions for educational system reform were identified, including a focus on the digitalization of the educational process. In

the context of blended learning, which combines online and traditional formats, the need for teaching staff to adapt to new technological requirements and methodologies is a pressing issue.

As digital technologies develop rapidly, competition in the educational services market intensifies, and the impact of the COVID-19 pandemic continues, educational institutions are increasingly shifting towards remote and distance learning formats. These transformations significantly influence the quality of educators' professional lives, requiring the development of new competencies, particularly digital ones. A key task for universities is to train personnel for the digital economy, which is closely linked to the readiness of educators to operate under new conditions and utilize digital technologies. Therefore, enhancing the digital competence of higher education institution faculty members is crucial for the successful preparation of specialists who can contribute to the digital economy's growth.

In line with the head of state's directives on prioritizing the update of the methodological base and integrating digital tools into the educational process, this study aims to analyze the current level of digital competence among university teachers and to develop recommendations for their further professional development in the context of blended learning. Special attention is given to evaluating the effectiveness of existing professional development programs, assessing teachers' needs in digital skills, and determining the best ways to integrate digital resources into the educational process. This analysis considers both the impact of government support and initiatives and the necessity of developing internal university strategies to strengthen digital literacy among the faculty, which is a key factor in ensuring high-quality education and preparing specialists who meet the demands of the modern labor market.

The landscape of university education globally has undergone significant transformations over the last three decades, particularly influenced by the Bologna Process, which introduced a new paradigm focused on student-centric learning, competencies, and learning outcomes [3]. according to the Ramirez Anormaliza et al., this shift was further accelerated by the widespread adoption of e-learning models at various levels of university education [4]. According to Forliano et al., universities have expanded their roles beyond traditional teaching and education, evolving into complex entities deeply intertwined with society and the corporate sector, and now play a key role in driving economic dynamics and social transformations, alongside their traditional missions of research and education [5].

As noted by Bonfield et al., the onset of the COVID-19 pandemic spurred an unexpected digital transition in the academic sphere, necessitating rapid transformation among staff and organizational structures to adapt to fully online modes of teaching and education worldwide [6]. This period of adaptation led to the emergence of a hybrid educational model that combines in-person and online education as a strategic response to the new constraints imposed by the pandemic. Gnaur et al., 2020 highlights that the advent of a digital society, compounded by post-pandemic challenges, has underscored the importance of digital competencies in the educational sector, bringing them to the forefront of scholarly discourse.

We are currently in the era of the Fourth Industrial Revolution, characterized by a complex merger of technologies, digitization, automation, and marked uncertainty [7]. In this context, the World Economic Forum has pointed out a skills gap, particularly in digital competence, which is deemed essential for future job markets. Discussions on Digital Taylorism raise concerns about the potential for automation to replace human roles across various sectors of employment, including those that require high levels of qualification [8]. Research by Frey and Osborne identifies the professions most suitable for replacement by computers [9]. The researchers note that in the future, 90% of jobs will require basic skills in information and communication technologies (ICT), emphasizing the critical role of universities in developing these competencies among the youth to effectively overcome global challenges.

The literature presents various terms such as digital competence, digital literacy, and digital skills, reflecting a growing consensus on the need to enhance digital capabilities among both educators and students. Universities are recognized as fundamental to promoting economic growth and social well-being, which is key to improving societal performance in the future.

Digital literacy emphasizes the socio-communicative aspects of human activity. The criteria for achieving digital literacy include:

- the criteria for achieving media literacy;
- skills in searching for necessary information and tools for working with it, and the ability to quickly master these tools (information literacy);
- skills in communicating with other users (communicative competence);
- skills in producing information in its various forms and formats (creative competence).

Digital competence is defined as an individual's capacity, built on the ongoing development of competencies (knowledge, skills, motivation, responsibility), to select and use information and communication technologies proficiently, efficiently, critically, and safely across different areas of life (information environments, communication, consumption, technosphere). This also includes their preparedness for such activities.

The COVID-19 pandemic forced millions of students to switch to online courses as part of an unprecedented global learning experiment [10]. The abrupt transition to the use of digital tools and online teaching methodologies has significantly improved the digital skills of higher education professionals. Since the pandemic, the blended learning format has become widespread due to health-related restrictions. This educational approach, termed hybrid learning, integrates conventional face-to-face instruction with online engagement.

The analysis of existing literature underscores that the enhancement of digital competence among university educators within blended learning frameworks is not simply a contemporary trend but an essential requirement for modern higher education institutions. The COVID-19 pandemic has accelerated the shift towards digital and hybrid learning models, emphasizing the critical need for educators to develop robust digital skills to navigate and facilitate these emerging educational paradigms effectively.

Kazakhstan's progress in digitalization, evidenced by its significant improvements in global rankings for e-government development and citizen e-participation, provides a conducive environment for the advancement of digital competence among university educators. These advancements not only position Kazakhstan as a leader among CIS and Central Asian countries but also demonstrate its ability to surpass developed nations such as Ireland and Canada in the utilization of information and communication technologies (ICT) across various sectors.

In this context, it is important to acknowledge that both e-government and citizen e-participation are heavily reliant on extensive ICT usage and require high levels of digital literacy among both the general public and public servants. This indicates a parallel necessity for the development of digital skills and competencies within the education sector, particularly in blended learning contexts.

The development of digital competence among university educators in Kazakhstan under blended learning conditions is pivotal for sustaining and advancing the country's digitalization achievements. Educators equipped with the necessary digital skills and competencies can integrate ICT more effectively into the educational process, thereby enhancing the quality of education and preparing students for participation in the digital economy. This progression contributes to bolstering the country's ICT capabilities, which is a critical factor for Kazakhstan's sustainable development and competitiveness on the global stage.

METHODS AND MATERIALS

The study was designed as a multidisciplinary cross-sectional investigation aimed at assessing the level of digital competence among university educators within the context of blended learning, with the primary goal of identifying key areas for the development of professional skills and determining effective strategies to enhance digital competence. Educators from various universities, representing a broad spectrum of disciplines, participated in the study, with participant selection based on inclusion criteria that included at least three years of teaching experience in a higher education institution and participation in blended or online learning during the last academic year.

Data collection utilized surveys and in-depth interviews, where the questionnaire included questions aimed at evaluating educators' self-assessment of digital competence, their experience using digital technologies in the educational process, and their attitudes towards blended learning, while in-depth interviews were conducted with the aim of gaining a detailed understanding of the perspectives and experiences of educators in the realm of digital education.

RESULTS AND DISCUSSION

In the contemporary educational sphere, digitalization emerges as a predominant global trend. A crucial prerequisite for implementing the Strategy for Scientific, Economic, and Technical Development is the "modernization of the national education system aimed at preparing graduates capable of living and conducting professional activities within a digital environment, taking into account the demands of new professions and shifting values and directions" [11]. The role of educators undergoes fundamental changes in the context of education sector digitalization. This shift is attributed to educators increasingly assuming the roles of organizers and mentors of individual and group learning activities, acting as intermediaries between the virtual and real worlds. Consequently, a "digital education project, firstly, entails daily use in life, and secondly, fosters the development of digital specialists, including digital competence in education" [12].

The practical application of digital technologies in education was significantly demonstrated during the "COVID-19" pandemic, which necessitated the swift adoption of remote learning modalities. These technologies have proven essential in ensuring the continuity of education. Despite these advancements, the transition has not impacted the qualifications of educators, highlighting a need for enhanced competency requirements. Educators must possess not only higher qualifications but also expertise in utilizing digital tools for curriculum design and delivery. As a result, training future educators to manage and facilitate educational processes in a digital setting is becoming increasingly important. Moreover, understanding the unique characteristics and educational strategies for the "digital generation" is now a vital focus of educational and scientific inquiry[13].

Therefore, the structure of university training programs for specialists is being reevaluated with a fresh viewpoint. This reevaluation emphasizes the necessity for complete proficiency in handling digital tools and pedagogical techniques. It underscores the critical role of integrating methods for developing and utilizing educational resources into professional skills to boost the educational process's efficiency. Consequently, this shift redefines the essential components of a teacher's professional competence, signifying a major move towards incorporating digital skills within the educational framework.

Within the conducted study assessing the level of digital competence among university educators in the city of Karaganda, surveys were administered, and in-depth interviews were conducted. The survey included questions aimed at identifying the level of proficiency with digital tools, the frequency and effectiveness of their use in the teaching process, and self-assessment of digital literacy. One of the key survey questions was, "How effectively do you use digital technologies to enhance student engagement?", to which the majority of respondents (70%) rated their effectiveness as high or very high. Another question addressed the educators' confidence in their skills with digital tools: "How do you rate your level of confidence when working with digital educational platforms?". Here, 65% of educators indicated feeling confident or very confident, highlighting the importance of regular professional development in this area.

The in-depth interviews provided a more detailed exploration of issues related to the application of digital technologies in the educational process. During the interviews, educators shared their experiences integrating ICT into curriculums and assessed the impact of digitization on the quality of education and student engagement. Special attention was given to the challenges and obstacles encountered during the transition to blended learning, and strategies for overcoming them. The analysis of responses revealed that one of the primary challenges is the need for continuous updating of ICT knowledge and skills to maintain relevance and effectiveness in teaching activities.

Educators emphasized the importance of access to resources for self-education and professional development, as well as the exchange of experience with colleagues as key factors for the successful integration of digital technologies into the educational process. Thus, the results of the surveys and interviews indicate a high level of awareness and readiness among university educators in Karaganda to use digital technologies in education, as well as the presence of certain difficulties and the need for further enhancement of their digital competence.

During the investigation into the digital competence of university educators, specific issues were identified through surveys and interviews. When asked about their proficiency with digital tools, only 40% of educators rated themselves as "highly competent," while 60% assessed their skills as "satisfactory" or "in need of improvement." Regarding the frequency of digital technology usage in the teaching process, 70% claimed they use them "often," yet only 30% considered their usage "effective." In terms of readiness to teach in a blended learning environment, 50% of educators reported "insufficient preparation" and expressed a need for additional training. Responses to questions about self-assessment of the ability to integrate digital resources into teaching showed that only 35% feel confident in their competencies, whereas 65% expressed doubts about their skills and knowledge. These findings indicate a critical need for the development and implementation of targeted professional development programs to enhance the digital literacy and competence of educators in higher education.

Furthermore, integrating digital competence frameworks and standards into teacher education programs can systematically raise the digital literacy of future educators. This approach ensures that new educators enter the profession with a solid foundation in digital skills, prepared to integrate technology into their teaching practices from the outset. Additionally, creating a feedback mechanism where educators can share their experiences and challenges with digital technologies directly with policymakers and curriculum developers can lead to more responsive and adaptive educational strategies. This feedback loop can help identify specific areas where educators feel underprepared and provide insights into the effectiveness of current digital tools and resources. Ultimately, embracing a holistic approach that combines training, resources, community building, and policy feedback will equip educators to navigate the complexities of the digital age, thereby enhancing the learning experience for students and contributing to the development of a digitally fluent workforce. This concerted effort will not only address the immediate needs of educators in adapting to digital transformation but also align higher education with the broader objectives of societal and technological advancement.

CONCLUSIONS

In conclusion, the study reveals a pivotal moment in the evolution of digital competence within the realm of higher education. While a fraction of educators in Karaganda demonstrate a commendable level of digital proficiency and confidence in utilizing digital tools for enhancing student engagement and educational outcomes, a significant portion still faces challenges in adapting to the rapid pace of technological advancements. The findings underscore the urgent necessity for comprehensive, structured professional development programs that are tailored to bridge the existing gaps in digital competence among university educators. Such initiatives should not only focus on enhancing technical skills but also on fostering innovative teaching methodologies that leverage digital technologies to their fullest potential. Additionally, the establishment of a supportive institutional framework that encourages continuous learning and adaptation to digital innovations is essential for sustaining the progress and ensuring the relevance of educational practices in the digital era. Ultimately, by prioritizing the enhancement of digital competencies among educators, higher education institutions can significantly contribute to preparing a workforce that is adept at navigating the complexities of the digital economy, thereby reinforcing the role of education as a cornerstone of societal and economic development.

To enhance digital competence among university educators and thereby improve the efficacy of higher education in the digital era, it's crucial to undertake a series of strategic initiatives. These

include the development and implementation of comprehensive professional development programs that not only focus on improving digital literacy and ICT skills but also on integrating innovative pedagogical techniques that effectively utilize digital tools. There's a need to foster a culture of continuous learning within educational institutions, promoting the value of ongoing professional growth in digital competencies, possibly through incentives for educators who engage in additional training. Ensuring educators have access to the latest digital resources and tools, alongside establishing peer learning networks, can facilitate the exchange of innovative teaching methods and collaborative problem-solving. Strengthening IT support infrastructures will provide necessary technical assistance to educators, minimizing disruptions and enhancing the digital learning environment. Moreover, incorporating digital competence as a fundamental aspect of curriculum design and educator evaluation criteria will maintain a consistent focus on the development and application of digital skills in education. Encouraging research into digital education practices and their effectiveness will yield insights for developing more effective strategies, while staying informed about and adapting to emerging technologies such as AI, VR, and AR can significantly benefit both educators and students. A collaborative approach involving educational institutions, policy-makers, and educators is essential for implementing these recommendations effectively, enabling the higher education sector to meet the challenges and opportunities presented by digital transformation comprehensively.

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Аралас оқыту жағдайында ЖОО оқытушыларының цифрлық құзыреттілігін дамыту

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Бұл мақала білім беру процесінде цифрлық технологиялардың тиімді интеграциясы мен сын-тегеуріндеріне сыни көзқарасты баса көрсете отырып, жоғары оқу орындарының оқытушылары арасындағы цифрлық құзыреттілікке терең талдау жасайды. Қарағандыдан келген кейс-стадиге ерекше назар аудара отырып, сауалнаманы да, егжей-тегжейлі сұхбаттарды да қамтитын деректерді жинаудың аралас әдісін пайдалана отырып, зерттеу оқытушылардың цифрлық құралдарды меңгеруі, олардың студенттердің қатысуын арттыру үшін технологияларды пайдаланудағы тиімділігін өзін-өзі бағалауы және цифрлық білім беру платформаларын пайдалануға сенімділігі туралы Елеулі мәліметтерді ашады. Нәтижелер аралас оқытуға көшу кезінде кездесетін кедергілерді және оларды жеңу үшін қолданылатын стратегияларды көрсете отырып, ақпараттық-коммуникациялық технологиялардың (акт) жылдам дамуына бейімделу үшін үздіксіз кәсіби даму қажеттілігін көрсетеді. Зерттеу өзін-өзі тәрбиелеу және кәсіби даму үшін ресурстарға қол жеткізудің маңыздылығын, сондай-ақ цифрлық технологияларды оқыту әдістемесіне сәтті енгізу үшін әріптестер арасында тәжірибе алмасудың артықшылықтарын атап көрсетеді. Жоғары білім контекстінде цифрландыруға дайындыққа және соған байланысты оқытушылардың сын-қатерлеріне жаңа көзқарас бере отырып, зерттеу цифрлық құзыреттілікті түсінуге және жақсартуға құнды үлес қосады, оның білім беру сапасын жақсартудағы және студенттерді цифрлық экономикаға

дайындаудағы маңыздылығын көрсетеді. Осылайша, бұл зерттеу оқытушылардың цифрлық құзыреттілігін нығайтуға бағытталған кәсіптік дамудың мақсатты бағдарламаларын әзірлеуге жол ашады, бұл қазіргі заманғы цифрлық орта жағдайында тиімді жұмыс істей алатын білікті мамандарды даярлаудың кілті болып табылады.

Кілт сөздер: цифрлық құзыреттілік, университет оқытушылары, аралас оқыту, білім беру технологиялары, мұғалімдердің біліктілігін арттыру, электрондық оқыту, цифрлық сауаттылық, жоғары білім, оқу бағдарламаларын жобалау, онлайн оқыту және бетпе-бет оқытуды біріктіру.

Развитие цифровой компетенции преподавателей вуза в условиях смешанного обучения

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Данная статья предоставляет глубокий анализ цифровой компетентности среди преподавателей вузов, подчеркивая критический взгляд на эффективную интеграцию и вызовы цифровых технологий в образовательном процессе. Используя смешанный метод сбора данных, который включает как анкетирование, так и подробные интервью, с особым вниманием на кейс-стади из Караганды, исследование раскрывает значительные сведения о владении преподавателями цифровыми инструментами, их самооценке эффективности в использовании технологий для повышения вовлеченности студентов и уверенности в использовании цифровых образовательных платформ. Результаты подчеркивают необходимость постоянного профессионального развития для адаптации к быстрому развитию информационных и коммуникационных технологий (ИКТ), указывая на препятствия, с которыми сталкиваются при переходе к смешанному обучению, и стратегии, используемые для их преодоления. Исследование акцентирует важность доступа к ресурсам для самообразования и профессионального развития, а также преимущества обмена опытом между коллегами для успешного внедрения цифровых технологий в методики преподавания. Предоставляя новый взгляд на готовность к цифровизации и связанные с этим вызовы преподавателей в контексте высшего образования, исследование вносит ценный вклад в понимание и улучшение цифровой

компетентности, подчеркивая ее значимость в повышении качества образования и подготовке студентов к цифровой экономике. Таким образом, данное исследование открывает путь для разработки целенаправленных программ профессионального развития, ориентированных на укрепление цифровой компетентности преподавателей, что является ключевым для подготовки квалифицированных специалистов, способных эффективно работать в условиях современной цифровой среды.

Ключевые слова: цифровая компетентность, университетские преподаватели, смешанное обучение, образовательные технологии, повышение квалификации учителей, электронное обучение, цифровая грамотность, высшее образование, дизайн учебных программ, интеграция онлайн-обучения и очного обучения

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