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CONCEPTUAL MODELS FOR IMPROVING EDUCATORS' PROFESSIONAL ACTIVITIES THROUGH DIGITAL EDUCATIONAL TECHNOLOGIES

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Abstract
This article analyzes the role and importance of digital technologies in the professional development of higher education educators. It examines the factors and methods involved in developing digital competence, using modern educational platforms, and increasing the productivity of research and teaching activities.

Keywords: Digitalization, higher education, pedagogical competence, LMS, professional development, artificial intelligence.

Introduction

The rapid transformations currently taking place in the global education system require higher education educators to adopt new approaches and possess a high level of digital literacy. Digital technologies are no longer merely teaching tools; they have become key drivers of the continuous improvement of educators' professional expertise and work productivity. In higher education institutions across the international academic community, research aimed at expanding educators' capacity to organize the educational process effectively through learning management system (LMS) platforms, virtual and augmented reality (VR and AR), digital content creation technologies, electronic monitoring

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systems, and data-driven education approaches is regarded as a priority area [5, 7].

Research Methodology

This study aims to assess the role of digital technologies in the professional activities of higher education institution (HEI) educators, their levels of digital competence, and the impact of these technologies on educational quality [6,15–17]. Supporting educators' professional development and consistently ensuring the quality of educational outcomes require reorganizing assessment systems on the basis of modern scientific approaches and improving diagnostic methods. Particular importance is attached to developing digital platforms that ensure assessment transparency, objectivity, continuity, and the reliability of results. In particular, implementing multimodal diagnostic approaches that make it possible to monitor and analyze various aspects of educators' activities within a unified information environment is an important factor in educational quality management. Accordingly, modern educational research recognizes the organization of assessment through the integration of data from multiple sources into a unified diagnostic system as a relevant area of scientific inquiry.

Literature Review

The digitalization of higher education and the development of educators' professional activities through modern technologies have received considerable attention from domestic and international researchers in recent years [6,8]. To identify the theoretical and practical aspects of this issue, it is appropriate to examine the academic literature in three main areas.

Within the international research community, the concept of educators' digital activity is based on the DigCompEdu (Digital Competence Framework for Educators) model. Developed by the European Commission, this framework covers six distinct areas of educators' digital competence, encompassing not only technical skills but also the creation of digital resources, the organization of teaching and learning, assessment, and the development of students' digital skills (Redecker, 2017) [3,5].

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Similarly, the TPACK (Technological Pedagogical Content Knowledge) model proposed by Mishra and Koehler (2006) demonstrates that successful teaching practice [4,2] arises from the integrated intersection of three domains of knowledge: technological, pedagogical, and subject-matter knowledge. Contemporary research (Ferrari et al., 2013) indicates that educators who cannot integrate technology with subject-specific teaching methods cannot achieve effective instruction.

Domestic scholars and researchers from Commonwealth of Independent States (CIS) countries pay particular attention to the organizational and pedagogical conditions for introducing digital technologies in higher education:

Domestic research. In Uzbekistan's higher education system, the theoretical foundations for enhancing educators' competence in information and communication technologies (ICT) have been developed in the work of scholars such as A. A. Abduqodirov, U. Sh. Begimqulov, and N. I. Taylaqov. According to these researchers, the digitalization of education should transform the educator's role and elevate the educator to that of an innovator and creator.

Systemic integration. Recent research, including experience with the implementation of HEMIS and LMS systems, has shown that a digital environment can reduce educators' administrative workload and allow them to devote more time to research and creative activities.

An analysis of academic sources indicates that several psychological and technical barriers remain to the practical application of digital technologies.

As Bates (2019) notes in Teaching in a Digital Age, many educators use technology merely to automate traditional teaching practices, such as reading slides instead of writing on the board. Genuine professional development, however, occurs only when teaching practices themselves are transformed through interactivity, blended learning, and project-based instruction.

Analysis and Discussion of Results

The results of the experimental work demonstrated that the use of a multimodal diagnostic approach to evaluating educators' professional activities is more effective than conventional assessment methods. During the study, information relating to educators' professional activities was collected from different

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sources, integrated, and analyzed within a unified information environment. This increased the objectivity of assessment and enabled regular monitoring of educators' professional development over time. The analysis showed that approaches based solely on tests or expert evaluations cannot fully reflect every aspect of an educator's work. In addition to improving the reliability of results, the multimodal approach substantially reduced the influence of subjective factors on assessment. The multimodal diagnostic model developed on the basis of the experimental results enabled comprehensive evaluation of educators' activities according to five principal criteria: motivational and value-related, cognitive, activity-related and technological [6,2], communicative, and reflective. Each criterion was characterized by a specific set of indicators, and their combined analysis was used to determine educators' levels of professional development. This approach made it possible to interpret assessment results not merely as final scores, but as analytical information reflecting developmental dynamics. One of the study's important outcomes was confirmation of the practical effectiveness of the author-developed "MuhandislikWeb" information system and its "Muhandislar hisobi" (Engineering Calculations) module. The platform enabled automated collection, processing, and analysis of data on educators' professional activities [7,4]. This is of fundamental importance for improving professional activities.

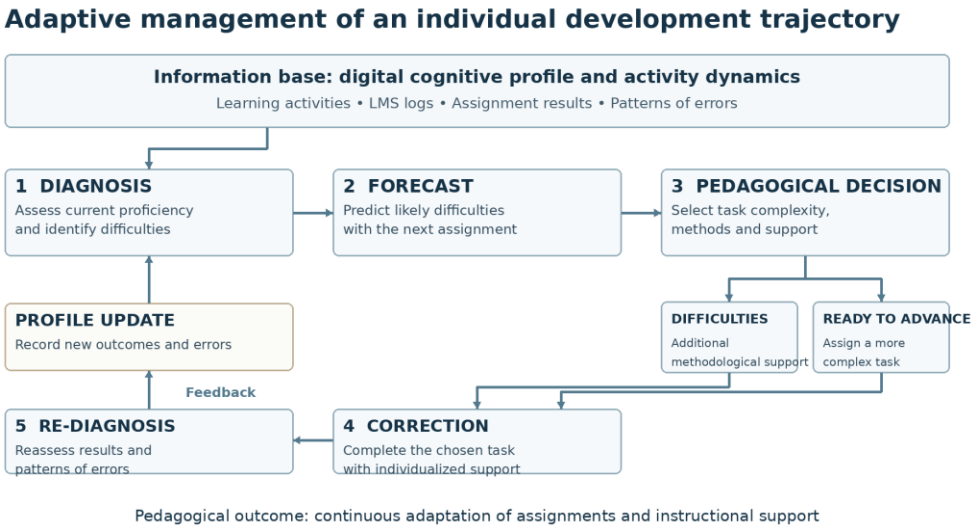


Figure 1. Mechanisms for improving educators' professional activities in a digital technology environment.

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In applying this approach in practice, the "Four-Step" method was enhanced with the capabilities of digital education. Its structure is based on the stages of explanation, demonstration, repetition, and independent practice. In a digital environment, these stages are combined with video instructions, animation, virtual laboratories, simulators, automated feedback, adaptive assignments, and electronic monitoring. As a result of this process, educators' methodological and digital competence, capacity for digital instructional design, information and analytical activities, ability to manage digital tools pedagogically, collaborative communication, and reflective development improve progressively (Figure 2).

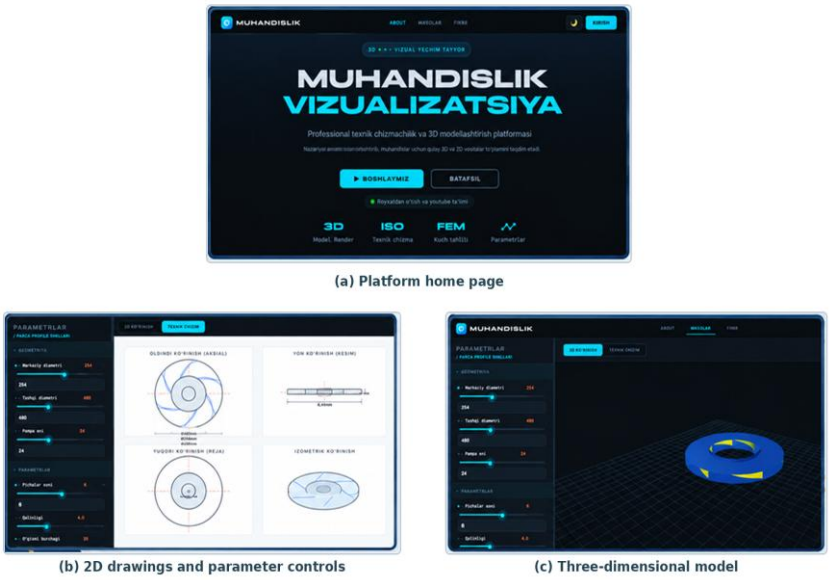


Figure 2. Software tool for improving educators' professional activities in a digital technology environment.

Platform URL shown in the source illustration: https://muhandislik2026.netlify.app/

Developing and enhancing educators' individual digital professional activities is an important means of improving their professional competence in modern higher education. This process is not limited to acquiring skills in using digital tools; it also encompasses the ability to plan, organize, manage, analyze, evaluate, and continuously improve one's professional activities in a digital environment. Therefore, the development of individual digital professional

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activity should proceed in stages, taking into account educators' professional needs, levels of digital preparedness, teaching experience, and readiness for innovation. The process begins with a diagnosis of existing digital competencies. At this stage, educators assess their digital knowledge, skills, and practical experience and identify needs and problems in their professional work. On the basis of the diagnostic results, individual development directions are determined and priority tasks are established for improving the educator's digital professional activities. Digital diagnostics provide an important foundation for understanding personal capabilities and identifying strengths and areas requiring improvement. The next stage involves designing teaching activities within a digital environment.

The informatization of education is one of the main factors driving its improvement. An important means of achieving this is for teaching staff to develop interactive textbooks, electronic teaching and methodological packages, or websites for the subjects they teach. These resources serve as key components in creating a digital learning environment for each subject and help solve engineering problems more easily and effectively [8,1].

Conclusions and Recommendations

This study undertook a comprehensive analysis of the role of digital technologies in the professional activities of higher education institution (HEI) educators and their impact on professional development. On the basis of the findings and theoretical analysis, the following main scientific conclusions were drawn [1,3]:

1. Transformation of professional activity. Digital technologies are changing the role of higher education educators from traditional "knowledge providers" (lecturers) to "learning facilitators and facilitator-creators." In addition to technical skills, this requires educators to develop digital pedagogical expertise in accordance with the TPACK and DigCompEdu models.

2. Optimization of time and labor resources. Integrating learning management systems (HEMIS and Moodle) and artificial intelligence (AI) tools into the

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educational process can reduce educators' administrative and routine work by 30–40%, enabling them to focus more on research and creative activities.

3. Existing barriers. The main obstacles to educators' professional development appear to be psychological resistance (anxiety about adapting to digital technologies) and insufficient methodological support and systematic training, rather than technical infrastructure problems.

Based on the research findings, recommendations for improving the effectiveness of digital technology use in higher education educators' professional activities were grouped into three main areas:

Implement a digital competence assessment system. Periodically assess HEI educators' digital skills against DigCompEdu standards and incorporate the results into a rating system.

Establish incentive mechanisms. Introduce financial and non-financial incentives for educators who create high-quality digital learning resources and interactive video lectures and make effective use of AI platforms.

Promote a culture of responsible artificial intelligence use. Develop educators' ability to use AI tools effectively and ethically when preparing educational content, reviewing academic literature, and assessing students' knowledge [6,7].

References

1. Colasante, Meg. "University Teachers 2019; Peer Review of Student-facing Videos to Mediate Multiple Goals in Digital Teaching." IEEE, 22nd International Conference on Information Technology Based Higher Education and Training (ITHET). https://ieeexplore.ieee.org/document/11585028
2. Lidak, L. V. "Factors in the Personal and Professional Development of Educators in the Context of Education Digitalization." Psychopedagogics in Law Enforcement Agencies, vol. 29, no. 1 (96), January–March 2024. [In Russian.]

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https://worldbulletin.org/index.php/1

3. Mardanshina, Raushaniya Zakarievna. “Everyone Needs a Mentor in Life.” Young Scientist, 2024, no. 25 (524). [In Russian.]
4. “Artificial Intelligence, Digital Technologies, and Modern Methodologies in Preschool and School Education: Problems and Solutions.” Proceedings of the International Scientific and Practical Conference, Khiva, 16–17 May 2025. https://xorazmpmm.uz/uploads/files/2025-08/1754550654_toplam-xiva-2025.pdf [In Uzbek.]
5. Moscow Pedagogical State University (MPSU). “The Impact of Digital Education on Educators’ Professional Activities.” Shamov Readings: Proceedings of the 15th International Scientific and Practical Conference. [In Russian.]
6. Potolya, D., I. Nyashku, and M. Manolescu. “Methodology for Assessing Students’ Academic Achievement.” Final qualification work. [In Russian.]
7. “Technologies for Developing the Digital Competence of Higher Education Teaching Staff in the System of Continuous Professional Development.” Abstract of a PhD dissertation. [In Uzbek.]
8. Nematov, Laziz Alisherovich. “Improving the Methodology for Teaching Electrical Engineering and Electronics Using Modern Pedagogical and Information Technologies (Based on Technical Higher Education Institutions).” Dissertation abstract. Bukhara, 2023. [In Uzbek.]