DESIGNING LESSONS THROUGH WEB-BASED PLATFORMS: AN INTEGRATION OF DIGITAL EDUCATIONAL TECHNOLOGIES AND INSTRUCTIONAL METHODOLOGY

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Abstract. This article examines the development of a web-based platform designed for lesson planning through the integration of pedagogical technologies and digital educational technologies, with a particular focus on developing students' and, specifically, pre-service teachers' competence in lesson design. The study analyzes the possibilities of developing a web-based platform aimed at enhancing students' competence in lesson design and using its functional capabilities to develop their ability to independently and effectively design lessons. The findings indicate that integrating pedagogical technologies, digital educational tools, methodological recommendations, lesson scenarios, video tutorials, and assessment materials into a web-based platform can provide an effective didactic environment for developing pre-service teachers' competence in lesson design.

Keywords: web-based platform, lesson design, lesson design competence, digital competence, digital educational technologies, pedagogical technologies, pre-service teachers, educational technologies.

In contemporary pedagogy, the use of web-based platforms to develop students' and, in particular, pre-service teachers' professional competence in lesson design has become an increasingly important area of research. Recent studies indicate a growing preference for approaches that promote students' active engagement in the learning process over traditional lecture-based approaches. At the same time, alongside teachers' ability to engage students actively in learning activities, increasing attention is being paid to the interactive potential of technology in education [1].

In the context of the rapid digitalization of education, the development of pre-service teachers' digital competence has become an essential condition for adapting to contemporary teaching practices and ensuring high-quality education [2]. Effective pedagogical use of digital technologies requires not only technical skills but also the competence to align these technologies with educational content, teaching methods, and learning objectives.

A study by Diana Laurillard, Eileen Kennedy, Patricia Charlton, Joanna Wild, and Dionisis Dimakopoulos [3] presents the findings of an interactive design-based research project focused on the development of the **Learning Designer** online design tool, which was intended to support teachers in their role as "designers." The main objective of the study was to evaluate the potential of the tool to develop and support a professional community of teachers engaged in knowledge creation. The findings also demonstrated that these opportunities could be further enhanced through additional functions supporting the collaborative development and peer review of learning designs.

Lee Jin Choi and Sun Joo Chung [4] examined the impact of a digitally enhanced teacher education course on pre-service English language teachers' self-confidence and practical skills in integrating technology into language teaching. The findings demonstrated that the teacher education course effectively increased pre-service teachers' confidence in integrating digital technologies into teaching practices, reduced their concerns related to technology integration, and provided them with the knowledge and skills necessary to use digital technologies effectively in their respective subject areas. The study also identified seven competencies required of pre-service teachers in online learning environments: **design and planning competence, social competence, teaching competence, technological competence, management competence, positive teacher attitude competence, and learning competence** [4].

The integration of digital educational technologies into educational programs, as well as the effective use of information and communication technologies in the

educational process, is increasingly becoming an essential component of contemporary education systems [5]. Therefore, teachers working with modern generations of students need to keep pace with innovations, acquire technologies in accordance with contemporary educational requirements, select technological tools appropriate to subject-specific objectives, continuously monitor emerging trends in educational technologies, improve their professional competencies, and effectively integrate ongoing technological changes into their educational practices [6].

Hulya Avci, Karen E. Rambo-Hernandez, and Trina J. Davis [7], among other scholars, have emphasized that teachers need to possess appropriate digital pedagogical competence in order to effectively integrate digital technologies into instructional practices and improve students' learning outcomes. Their study examined various factors influencing teachers' use of digital technologies. Teacher-level factors included prior preparation and professional development in information and communication technologies, job satisfaction, and collaborative practices. School-level factors included the innovativeness of teacher teams, school innovativeness, and digital infrastructure [7]. The study provides important insights into individual and contextual factors associated with teachers' digital pedagogical competence, as well as implications for teacher preparation, professional development, and educational policy [7].

The potential of web-based platforms for developing students' and, particularly, pre-service teachers' professional competence can also be observed in the **ILUKS Planner** digital lesson design platform investigated by Yevhen Kuznietsov and Iryna Dobroskok [8]. The platform demonstrates the possibility of integrating digital technologies into pre-service teacher education not merely as technical tools but as pedagogical and didactic instruments. It transforms lesson planning from an individual, one-time task into a process characterized by collaboration, continuous improvement, and research-based practice.

Unlike conventional, standardized lesson plans, ILUKS Planner enables lesson plans to be organized in a modular and visual format. The platform interface consists of the following didactic categories and components:

- students' prior knowledge (**Student prerequisites**);
- learning objectives (**Learning goals**);
- activity cards (**Activities / Activity cards**);
- assessment and assessment criteria (**Assessment / Assessment criteria**);
- learning resources and equipment (**Learning resources and equipment**).

In addition, the ILUKS Planner platform includes a **Resource Bank** function, where ready-made lesson designs developed by experienced teachers are stored. Pre-service teachers can analyze these resources, examine the pedagogical approaches and decisions of experienced colleagues, and use them as methodological examples when developing their own lesson designs.

Although the studies discussed above have proposed several approaches to teaching students, particularly pre-service teachers, to design lessons using web-based platforms, the pedagogical and methodological capabilities of web-based platforms that support independent lesson design have not yet been fully explored. In particular, insufficient attention has been given to integrating the selection of pedagogical technologies for different lesson stages, methodological guidelines for using digital educational tools, lesson scenario development, and assessment materials within a unified digital environment. From this perspective, further research in this area is of considerable scientific and practical relevance.

To identify the difficulties encountered by school teachers in the process of designing lessons, a questionnaire survey and interviews were conducted. The findings indicated that teachers spend considerable time searching various online sources for guidelines on the use of pedagogical technologies and teaching methods when developing lesson plans. Difficulties were also identified in determining which methods or pedagogical technologies would be most appropriate for particular stages

of a lesson. In addition, preparing various instructional and methodological materials for classroom use was found to require considerable additional time and effort.

To address these identified challenges, the need emerged to develop the **teachingtec.uz** web-based platform, which provides methodological and technological support for the lesson design process.

The **teachingtec.uz** web-based platform is designed to provide methodological and technological support for the lesson design process. The platform incorporates ready-made lesson scenarios illustrating the use of various educational technologies, video tutorials on the use of digital educational technologies, methodological resources recommended for different stages of a lesson, and materials designed to assess students' learning outcomes.

These functions enable the platform to systematically address the challenges encountered by teachers during lesson design. In particular, the platform helps reduce the time required to search for information about pedagogical technologies and teaching methods across different online sources, facilitates the selection of appropriate methods or technologies for specific lesson stages, provides practical guidance on the use of digital educational tools, and consolidates methodological and assessment materials within a single digital environment.

In this regard, the teachingtec.uz platform can be considered not merely a digital tool that provides ready-made methodological resources but also a pedagogical and didactic environment that supports the development of pre-service teachers' ability to independently design lessons, select pedagogical methods and technologies in accordance with instructional objectives, and integrate them effectively into the educational process.

In conclusion, the systematic and purposeful use of scientific and methodological recommendations based on contemporary pedagogical and digital educational technologies is of considerable importance in developing university students' competence in lesson design. This approach creates opportunities for students to independently design lessons in accordance with contemporary

pedagogical and digital technology requirements, improve their content, select appropriate methods and technologies, and organize the educational process effectively.

Furthermore, organizing the lesson design process through a web-based platform contributes to the systematic development of students' professional competencies related to planning pedagogical activities, designing educational content, selecting contemporary pedagogical and digital technologies in accordance with instructional objectives, and effectively applying these technologies in practice.

From this perspective, the implementation of web-based platforms such as teachingtec.uz in the educational process creates additional pedagogical and didactic opportunities for developing pre-service teachers' competence in lesson design. Consequently, such platforms can contribute to improving the effectiveness of preparing pre-service teachers who are capable of meeting the requirements of contemporary education, organizing pedagogical activities based on innovative approaches, effectively using digital educational technologies for pedagogical purposes, and demonstrating a high level of professional competence.

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