DESIGN AND EVALUATION OF A MODEL OF ELECTRONIC-DIGITAL SHORT-TERM LESSON PLANNING USING SOFTWARE IN THE EDUCATIONAL PROCESS

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ABSTRACT

The aim of the study was to examine the pedagogical advantages of developing and using an electronic-digital short-term lesson plan with software tools and to design an effective model. The research was conducted from 01.09.2025 to 28.12.2025 at Shakarim University among 116 teachers of pedagogical specialties who entered after college. During the study, electronic-digital lesson plan models were developed using Planboard, TildaEducation, and SITE123 platforms. Based on specially designed criteria, the most effective model was identified. For comparative analysis, 32 lessons were conducted over one month: 16 lessons using the traditional short-term lesson plan and 16 lessons using the electronic-digital format. The outcomes were assessed through questionnaires and evaluation criteria completed after each lesson. The research was implemented in several stages, including training in digital technologies, analysis and development of a short-term lesson plan, studying the structure of the electronic-digital format, creating models on the selected platforms, comparing the models based on defined criteria, and conducting practical lessons to compare traditional and electronic-digital formats. The results showed that, in the context of digitalization of education, the electronic-digital short-term lesson plan is an effective and practical tool for organizing the modern learning process, improving flexibility, accessibility, and efficiency in lesson planning and implementation.

Keywords: Electronic-digital short-term lesson plan, digital education, digital technologies, pedagogical planning, software.

INTRODUCTION

The short-term lesson plan (STLP) is one of the key documents and fundamental tools in teaching practice. In Kazakhstan, its development is regulated by an order of the Ministry of Education and Science of the Republic of Kazakhstan, which defines the list of mandatory teacher documents and their formats. The STLP serves as the main document for planning and organizing the educational process.

The development of the short-term lesson plan is carried out by the teacher in accordance with the learning objectives set in the curriculum and is based on the нормативные documents of the Ministry of Education of the Republic of Kazakhstan, as well as the requirements of the updated educational content.

In Kazakhstan, the STLP is developed according to an approved structure that includes the lesson topic, learning objectives, assessment criteria, language objectives, lesson stages (beginning, main part, conclusion), differentiation tasks, and reflection. During planning, the teacher defines the ways to achieve learning outcomes, as well as the methods, techniques, and

resources to be used. At the same time, the STLP is mainly used in a traditional paper-based format (Table 1).

Table 1. Sample of completing the short-term lesson plan template in accordance with Order No. 130 of the Ministry of Education and Science of the Republic of Kazakhstan

Teacher's Full Name	Aizere Kablassymova			
Date	12.05.2026			
Grade 10	Number of students present:19 Number of students absent:3			
Lesson topic	Discrete Random Variables			
Learning objective in accordance with the curriculum	10.3.2.10 – to know the definition of discrete and continuous random variables and be able to distinguish between them			
Lesson objective	Development of the ability to distinguish between discrete and continuous random variables based on their properties and examples			
Lesson stages	**Teacher's actions**	**Students' actions**	**Assessment**	**Resources**
Beginning (5–7 min)	I. Organizational stage: greeting; checking attendance; creating a positive learning atmosphere (if necessary); review questions on previous topic; checking homework	Greet the teacher, answer questions, present homework	Formative assessment	Textbook, presentation, digital platforms
Main part (30 min)	II. Main stage: introduction to the topic and lesson objectives; theoretical explanation; completion of practical tasks (individual, pair, group work); differentiated tasks for inclusive learners	Get acquainted with the topic and complete practical tasks	Formative assessment	Textbook, presentation, digital platforms
End (5–7 min)	III. Final stage: reflection; assessment of students; feedback on the lesson; assignment of homework; summarizing the lesson	Provide feedback and participate in assessment	Formative assessment	Textbook, presentation, digital platforms

The template presented in Table 1 is prepared in Microsoft Word format, after which it is printed and used in paper form.

The development of digital technologies is actively driving the digital transformation of the education system in Kazakhstan. Key components of the educational system, including management, assessment, monitoring of the educational process (BilimClass, Platonus), access to electronic textbooks (Okulyk.kz), and online learning through video materials (Bilimland.kz), are being integrated through digital technologies.

The electronic-digital format of lesson planning has long been used in countries with highly developed education systems. Lesson plans are developed, stored, and implemented through digital platforms and educational systems such as LMS platforms and online templates. Examples include Wilma in Finland, eKool in Estonia, and digital lesson planning systems in Singapore and South Korea. This study reviewed and analyzed the effective practices of these countries (Kablasymova, 2025d).

When studying international experience, it is important to consider the country's level of development, the degree of digitalization, and the level of digital literacy. Therefore, the

research methodology considered the features of Kazakhstan's education system and teachers' digital competence.

The main research problem is that, despite the active implementation of digital technologies, short-term lesson plans in Kazakhstan are still mainly used in a traditional paper-based format, limiting integration with modern digital educational resources and technologies (Kablasymova, 2025c). This highlights the need to improve the electronic-digital format of short-term lesson planning in line with the requirements of the digital educational environment.

The relevance of the study is determined by the need to create a flexible and functional electronic-digital format of short-term lesson planning that supports the effective integration of digital technologies into education. The practical significance of the study lies in the possibility of applying the developed model in secondary education to improve pedagogical planning and lesson organization.

LITERATURE REVIEW

Theoretical Foundations of Lesson Planning

Lesson planning is a key component of pedagogical activity and the foundation of an effective educational process. It has been studied by both domestic and international researchers who have contributed to the theory and practice of instructional design.

P. P. Blonsky, S. T. Shatsky, M. N. Skatkin, V. A. Slastenin, and Y. K. Babansky laid the fundamental foundations of lesson planning. Their research focused on the structure of the lesson, goal setting, selection of teaching methods and tools, and the optimization of the educational process.

International researchers have significantly influenced modern approaches to lesson planning. Ralph Tyler developed a goal-based planning model focused on defining objectives and evaluating outcomes. Benjamin Bloom proposed the taxonomy of educational objectives, which became a foundation for designing learning outcomes. Robert Gagné introduced the nine events of instruction model, emphasizing the sequential organization of learning activities. Jay McTighe and Grant Wiggins (1998) proposed the Backward Design approach, based on planning instruction starting from desired learning outcomes.

In order to systematize the presented information, key researchers in the field of pedagogical planning, the main directions of their work, and their scientific contributions are presented in Table 2.

Table 2. Researchers in Pedagogical Planning

No.	Scholar / Model	Field and Contribution	Evidence
1	P. P. Blonsky	Soviet pedagogy and psychology; emphasis on goal-setting and teaching methods	Highlights the importance of lesson objectives and structure as a scientifically grounded process (Blonsky, 1917)
2	S. T. Shatsky	Soviet experimental pedagogy; introduction of active learning forms and democratization of education	Emphasizes the role of learning environment and collective pedagogy in lesson planning (Shatsky, 1980)
3	V. A. Slastenin	Modern Russian pedagogy; lesson structure and typology of instructional activities	Describes lesson stages, types, and planning principles (Slastenin, 2002)

4	Y. K. Babansky	Theory of optimization of teaching and instructional design	Supports principles of forecasting, instructional design, and lesson reflection (Babansky, 1982)
5	B. Bloom	Taxonomy of educational objectives; cognitive-level lesson planning	Used for defining hierarchical learning objectives and assessment criteria (Bloom, 1956)
6	R. Gagné	Learning psychology; nine events of instruction model	Provides a structural framework of lesson stages including attention, objectives, practice, and feedback (Gagné, 1965)
7	J. Carroll	Model of school learning; learning time and instructional adaptability	Highlights the role of time allocation and adaptability in lesson planning (Carroll, 1963)
8	Ralph Tyler / Wiggins & McTighe (Backward Design)	Outcome-based instructional design models	Defines planning logic starting from learning outcomes to assessment and methods (Tyler, 1949; Wiggins & McTighe, 1998)
9	Krepf & König	Contemporary empirical studies on teachers' planning competence	Demonstrate the relationship between planning competence and teaching effectiveness (Kaiser & König, 2020)

Table 2 presents the works of researchers and educators from different periods, ranging from classical pedagogical thinkers to contemporary empirical studies. Together, these works form the basis for a comprehensive understanding of lesson planning as an integrated, adaptive, and theoretically grounded process.

Contemporary empirical studies, particularly the works of G. Krepf and J. König, focus on teachers' planning competence and its impact on the quality of the educational process in a digital environment. In addition, the methodological and practical aspects of short-term lesson planning are supported by the works of Mikhail V. Klarin (Kaiser & König, 2020), Evgenia S. Polat (Polat, 2007), and Andrey V. Khutorskoy (Khutorskoy, 2005). Their research highlights systematic approaches to lesson structuring, the use of digital tools, and the improvement of teaching effectiveness.

A review of studies in the field of software development was also conducted, and digital platforms were examined. The results of this study were published in a scientific article (Kablasymova, 2025d).

Digitalization of Education and Digital Educational Environment

Digital technologies transform education, integrating platforms, LMS, online learning, cloud, and digital resources.

Digitalization changes the teacher's role, requiring digital competence and integrating technologies into teaching and instructional design. Blended learning, smart education, mobile learning, and digital pedagogy are relevant.

Research shows digital technologies improve learning flexibility, increase resource access, and enhance individualized learning.

Electronic and Digital Lesson Planning in International Practice

In Finland, the Wilma system manages educational processes and communication. Estonia's eKool integrates gradebooks, lesson planning, and learning resources. Singapore and South Korea also widely use digital technologies for teaching and lesson planning.

Beyond national systems, LMS platforms (Moodle, Canvas, Google Classroom) and lesson planning tools (Planboard) are widely used. They allow teachers to integrate multimedia, online resources, hyperlinks, QR codes, and assessment tools into lessons.
Electronic lesson planning ensures mobility, flexibility, and efficiency, supporting digital technology integration (Kablasymova, 2025d).

Use of Software and Artificial Intelligence in Lesson Planning
Software and AI are increasingly used in teaching. Digital tools automate lesson planning stages, create interactive materials, and integrate educational resources.
Generative AI develops learning materials and short-term lesson plans. Tools like ChatGPT, Microsoft Copilot, and MagicSchool AI help teachers quickly structure lessons, generate tasks, assessment criteria, and content.
AI reduces lesson preparation time, increases pedagogical planning efficiency, and supports adaptive learning. However, pedagogical control of content quality and adherence to didactic principles remains necessary (Kablasymova, 2025b).

Analysis of Existing Research and Research Gap
The scientific literature extensively covers educational digitalization, LMS, digital platforms, AI integration, digital transformation of learning, teacher digital competence, and digital educational resources.
Despite this broad coverage, the electronic-digital format of short-term lesson planning remains insufficiently explored. Most studies focus on digital platforms or general digitalization, while the short-term lesson plan, as an independent digital didactic unit, receives limited attention.
In Kazakhstan's education system, research on the development and application of an electronic-digital format for short-term lesson planning is notably lacking. Specifically, the integration of digital resources into lesson plans, LMS platform use for planning, and the electronic-digital format's impact on lesson organization and effectiveness remain underexplored.
Thus, literature analysis confirms a significant research gap, justifying the need to improve the electronic-digital format of short-term lesson planning in Kazakhstan's modern digital educational environment.

METHODOLOGY

The research consisted of two stages.

1. At the first stage, digital models of lesson plans were developed using the Planboard, Tilda Education, and SITE123 platforms, followed by the selection of the most optimal platform.
2. At the second stage, lessons were conducted using both traditional and digital lesson plan formats to evaluate the effectiveness of the digital model, which involves the integration of digital technologies.

The research involved 116 teachers from groups PMNO-2501s, PMNO-2503s, PMNO-2505s, and PMNO-2401s, enrolled at Shakarim University in the educational program “Pedagogy and Methods of Primary Education” (a two-year higher education program based on secondary vocational education in the specialty “Primary School Teacher”).

The research was conducted from September to December of the 2025–2026 academic year within the course “Theory and Methods of Teaching Mathematics in Primary School,” according to the plan presented in Table 3.

Table 3. Research Plan

Research period	Conducted research
September 01.09.2025–07.09.2025	Selection of the research group. Development of research materials and tasks.
September 08.09.2025–28.09.2025 (until 10.10.2025)	Training participants to work with digital platforms used for lesson stages, lesson processes, planning, and organization of the educational process.
October 29.09.2025–05.10.2025	Introduction to the concept of the short-term lesson plan, relevant orders, and approved templates; analytical review of the topic; comparison and analysis of traditional and digital education.
October 06.10.2025–19.10.2025	Development of traditional short-term lesson plans integrating digital technologies, resources, and platforms into the learning process; evaluation and assessment of the plans.
November 27.10.2025–09.11.2025	Development of three electronic-digital lesson plan models using Planboard, TildaEducation, and SITE123 based on traditional plans; evaluation according to specific criteria. The SITE123 model received the highest score.
November 10.11.2025–16.11.2025	Development of three electronic-digital lesson plan models using Planboard, TildaEducation, and SITE123 based on traditional plans; evaluation according to specific criteria. The SITE123 model received the highest score.
December 17.11.2025–14.12.2025	Lesson implementation: in each of the 4 groups, 4 teachers conducted lessons using both traditional and electronic-digital formats. In total, 32 lessons were conducted (16 traditional, 16 digital). Individual surveys were conducted to assess the effectiveness and significance of both formats.
December 15.12.2025–28.12.2025	Systematization, analysis, and processing of research results and survey data.

For the development of a short-term electronic lesson plan, Planboard, Tilda Education, and SITE123 were selected from a wide range of software. The selection was based on an analysis of their features, functionality, statistical data, and popularity within the pedagogical community.

RESULTS

Results obtained at the first stage of the research:

At the first stage, teachers mastered the development of tasks and learning materials using digital platforms. The completed works were collected in a Telegram channel (Figure 1).

Figure 1. QR code of the Telegram channel https://t.me/+OfNgC-M5B7FkMTJi

Analysis of the channel materials showed: 214 media files, 83 documents, and 240 links to works created on digital platforms. The volume and quality of the collected materials, as well as photo evidence, demonstrate the scale of the training (08.09.2025 – 19.10.2025). Mastering

digital platforms is a key stage, as filling lesson plans with materials from these platforms requires the development of teachers' digital skills.

The traditional short-term lesson plan was developed by integrating tasks and visual materials prepared on digital platforms for each lesson stage. All developed lesson plans can be viewed in the Telegram channel: https://t.me/+OfNgC-M5B7FkMTJi.

The developed traditional lesson plans were then transferred to Planboard, TildaEducation, and SITE123 to create electronic-digital models. Teachers participating in the pilot study evaluated the functionality of these digital platforms according to the following criteria:

1) How easy was it to work on the platform?
2) How clear was the interface?
3) How do you evaluate the level of integration with digital platforms and digital resources?
4) How do you assess the usability of internal functions and platform structure?
5) How do you evaluate the speed of mastering the platform?

The platforms were evaluated using a five-star rating scale chosen to ensure clarity, objectivity, and comparability of the results. Based on individual ratings for each platform, Table 4 was compiled, summarizing the survey results.

Table 4. Results of the questionnaire on the evaluation of the creation of an electronic-digital lesson plan using Planboard, Tilda Education, and SITE123 platforms

No	Questions	Planboard	TildaEducation	SITE123
1	How easy was it for you to work on the platform?	1⋆ - 6,25% 2⋆ - 75% 3⋆ - 18,75%	1⋆ - 6,25% 2⋆ - 63% 3⋆ - 30,75%	2⋆ - 12,5% 3 ⋆ - 56,25% 4 ⋆ - 31,25%
2	How clear was the interface for you?	1⋆ - 8,75% 2⋆ - 69% 3⋆ - 22,25%	1⋆ - 6,25% 2⋆ - 56,25% 3⋆ - 35%	2 ⋆ - 16,25% 3 ⋆ - 48,75% 4⋆ - 35%
3	How do you evaluate the level of integration with digital platforms and digital resources?	5⋆ - 100%	5⋆ - 100%	5⋆ - 100%
4	How do you assess the usability of the internal functions and structure of the digital platform?	3⋆ - 70% 4⋆ - 30%	2⋆ - 11,25% 3⋆ - 73,75% 4⋆ - 15%	3⋆ - 77,5% 4⋆ - 22,5%
5	How do you evaluate the speed of full mastery of this platform?	2⋆ - 39% 3⋆ - 61%	2⋆ - 30% 3⋆ - 70%	3⋆ - 42,5% 4⋆ - 57,5%

Based on the data presented in Table 4, the percentage indicators for each question were converted into average ratings, after which a comparative analysis was conducted (Table 5).

Table 5. Average rating of electronic-digital short-term lesson plan development on Planboard, Tilda Education, and SITE123 platforms

No	Questions	Planboard	TildaEducation	SITE123
1	How easy was it for you to work on the platform?	2,123 из 5	2,25 из 5	3,1875 из 5
2	How clear was the interface for you?	2,1375 из 5	2,2625 из 5	3,1875 из 5
3	How do you evaluate the level of integration with digital platforms and digital resources?	5 из 5	5 из 5	5 из 5
4	How do you assess the usability of the internal functions and structure of the digital platform?	3,3 из 5	3,0375 из 5	3,225 из 5
5	How do you evaluate the speed of full mastery of this platform?	2,6125 из 5	2,7 из 5	3,575 из 5

According to the data presented in Table 5, SITE123 received the highest rating in the process of developing the electronic-digital short-term lesson plan. At the initial stage of analyzing its functional orientation and structure, SITE123 was perceived as less suitable for structuring lesson planning compared to Planboard and Tilda Education. However, subsequent practical implementation revealed higher evaluation results. It is important to note that, at the planning stage of the research, the final outcomes of implementation were not predictable, which ensured the objectivity of the comparative analysis.

The evaluation was conducted strictly within the context of developing the electronic-digital short-term lesson plan; therefore, the obtained results cannot be considered a comprehensive assessment of the platforms as a whole. The collected data were primarily used to identify the platform most suitable for further research on the effectiveness of the electronic-digital lesson planning model.

The functional advantages of SITE123, highly rated by teachers – namely the ease of internal structure for organizing work (3.1875 out of 5), interface intuitiveness (3.1875 out of 5), and ease of learning (3.575 out of 5) – were recorded for further analysis. These characteristics were taken into account in the development and presentation of the final model of the electronic-digital short-term lesson plan (EDSLP), based on the combination of empirical procedures and comparative analysis conducted in this study.

Each of the selected platforms allows the development of an electronic-digital short-term lesson plan, as they are integrated with digital technologies. Each platform can be effectively used in different pedagogical contexts depending on the goals, tasks, and lesson format – from systematic planning to the presentation of instructional materials and modules. This variability demonstrates a flexible digital model of the lesson plan that can be adapted to the teacher's needs.

The study and testing of digital platforms showed that modern software tools provide extensive functionality for developing various electronic-digital lesson plan models. Each model can be adapted to the educational goal, pedagogical task, and teacher's preferences, increasing the flexibility of lesson planning. The results confirm the transformation of the traditional paper-based lesson plan into an electronic-digital form through multiple alternative models suitable for different levels and types of teaching.

It is noteworthy that even simple website-building platforms without a specific pedagogical focus enable the rapid and effective creation of high-quality, visually clear, and functional lesson plans that surpass paper-based versions. This demonstrates the high adaptability of digital solutions and their potential to improve the quality of lesson planning.

Thus, the transition from paper-based to electronic-digital lesson planning is both technically feasible and methodologically justified, improving the organization of the educational process in the context of digital transformation.

The next stage of the research is the experimental implementation of traditional and electronic-digital lesson plans in real classroom settings.

Based on the results of the comparative analysis, further research will focus on electronic-digital lesson plan models developed on the SITE123 platform.

Results obtained at the second stage of the research:
The comparison of traditional short-term lesson plans with electronic-digital models developed on the SITE123 platform was carried out based on the following criteria:

1) Approximate time spent on preparing tasks and materials on digital platforms included in the lesson plan (electronic-digital short-term lesson plan) before the lesson;
2) Number of references to the paper-based lesson plan (KSP) or electronic-digital lesson plan (EDLP) during the lesson;
3) Presence of time delays when accessing tasks on digital platforms during the lesson;
4) Number of digital platforms considered appropriate by the teacher for use within this lesson plan format;
5) Factors influencing the choice of response to the previous question;
6) Whether the lesson plan (paper-based or electronic-digital) functioned as an essential instructional tool or remained mainly a formal document during the use of digital platforms;
7) A more detailed explanation of the previous response.

The summarized results of the study are presented in Table 6.

Table 6. Results of the comparison between the traditional short-term lesson plan (STLP) and the electronic-digital short-term lesson plan (EDSLP) during the lesson

No	Questions	Response Options	STLP	EDSLP
1	Approximately how much time did you spend preparing and formatting tasks and materials on digital platforms included in the STLP (EDSLP) before the lesson?	Less than 2 minutes	0%	38%
		About 5 minutes, but not more than 5	0%	62%
		Approximately 5–10 minutes	31,25%	0%
		More than 10 minutes	68,75%	0%
2	How many times did you use the STLP (EDSLP) during the lesson?	I used it continuously throughout the lesson	0%	100%
		I referred to it 1–2 times only	39%	0%
		I did not use it at all	61%	0%
3	How did you perceive time delays when opening tasks on digital platforms during the lesson?	Frequent delays occurred	56%	0%

		Occasional delays occurred	44%	19%
		No delays occurred	0%	81%
4	In your opinion, how many digital platforms are appropriate (sufficient) to use in one lesson?	1-2	50%	13%
		2-3	32%	25%
		More than three can be used	6,25%	62%
		One platform is sufficient	11,75%	0%
5	What influenced your answer to the above question? Please provide a detailed explanation	Open response	-	-
6	During the use of digital platforms, did the electronic-digital lesson plan function mainly as an essential instructional tool or as a formal document?	Essential instructional tool	13%	100%
		Formal document	87%	0%
7	Please elaborate on your previous answer in more detail	Open response	-	-

According to the results presented in Table 6, the use of the electronic-digital short-term lesson plan during lessons with the integration of digital technologies confirmed its effectiveness.

DISCUSSION

Summarizing the research results, the comparative analysis of the two short-term lesson planning formats makes it possible to identify their substantive, functional, and technological differences, which is of both theoretical and practical significance for pedagogical science and educational practice (Table 7).

Methodological basis of comparison

The comparative analysis is conducted based on the following criteria:

1) structural organization of the lesson plan;
2) functionality;
3) flexibility and adaptability;
4) didactic content;
5) visualization and multimedia support;
6) integration with digital environments;
7) possibilities for automated assessment and feedback (Kuzmina, 2020), (Kalmykova, 2021), (Polyakova, 2021), (Alieva, 2022).

Table 7. Traditional Short-Term Lesson Plan (STLP) vs Electronic-Digital Short-Term Lesson Plan (EDSLP)

No	Criterion	Traditional STLP	Electronic-Digital STLP (EDSLP)
1	Format	Paper document / Word file	Digital template, LMS, cloud-based software
2	Accessibility and storage	Limited, physical copy, risk of loss	Limited, physical copy, risk of loss
3	Editability	Limited, requires full re-creation	Fast editing, templates, auto-updates
4	Content visualization	Text, tables	Infographics, hyperlinks, embedded videos, diagrams, animations
5	Interactivity	Absent	Present: interactive elements, embedded tasks
6	Flexibility and adaptability	Static, rarely revised	Adaptable to goals, learners, and lesson format
7	Integration with other resources	Requires manual attachment	Integration with presentations, assessment tools, LMS
8	Collaborative use	Limited, mainly individual work	Real-time collaborative editing and co-design (Google Docs, Canva, etc.)
9	Assessment and analytics	Separate, manual processing	Built-in forms, automatic statistics, Google Forms, etc.
10	Student feedback	Through notebooks and oral communication	Online reflection tools, forms, surveys, Padlet, etc.
11	Methodological flexibility	Rigid structure, template-based	Customizable structure aligned with didactic objectives
12	Development of digital competence	Limited impact	Actively develops teachers' digital literacy and competencies

The conducted analysis shows that the electronic-digital short-term lesson plan has several advantages compared to the traditional format, including:

1) increased design flexibility;
2) expansion of the didactic toolkit;
3) integration with digital services;
4) optimization of preparation time;
5) development of digital competencies of both teachers and students.

However, the implementation of the EDSLP requires:

1) teachers' digital literacy;
2) availability of technical infrastructure and internet access;
3) methodological support and ready-made templates;
4) administrative and institutional support (Kalmykova, 2021). (Kalmykova, 2021).

CONCLUSIONS

The study found the digital lesson plan effective and essential for modern education, optimizing lesson organization, providing rapid resource access, and increasing teaching mobility and flexibility.

The digital format enables teachers to design lesson plans tailored to individual preferences, subject specifics, and learning objectives. Digital platforms integrate hyperlinks, QR codes, multimedia, online resources, and assessment tools directly into the lesson structure, expanding traditional planning functionality.

The study revealed the diminished practical significance of traditional paper-based lesson plans as primary instructional tools. In a digital environment, the digital format becomes a fully integrated working tool, not merely an alternative.

Thus, the digital lesson plan represents an improved form of traditional planning and a new didactic unit of the digital era, transforming approaches to educational organization, management, interaction, and reflection.

The study confirms that digital planning enhances teachers' digital competence, improves digital technology integration, and supports an adaptive educational environment. Results provide a foundation for designing a digital lesson plan model that considers pedagogical objectives and modern digital environment capabilities. The developed model is applicable in secondary education across subjects, improving pedagogical design. This format is particularly relevant for early-career teachers who actively use technology.

The study's scientific novelty lies in considering the lesson plan as an independent digital didactic unit, integrating digital educational resources, assessment tools, and pedagogical interaction within a unified digital environment, rather than merely an organizational document. It proposes a digital lesson plan model and defines its functional and didactic capabilities.

Main advantages of the digital format include reduced lesson preparation time, automated planning processes, integration with LMS platforms and educational resources, mobility and accessibility across devices, and increased educational interactivity.

The study identified factors influencing digital format implementation effectiveness: teachers' digital competence, institutional material and technical infrastructure, and internet resource availability.

Future research directions include integrating artificial intelligence into pedagogical planning, developing adaptive digital lesson plan models, automating lesson structure generation, and using analytical tools within digital educational environments for improved learning effectiveness.

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