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Theoretical and Practical Foundations of Using Pedagogical Software Tools in Geography Education

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Abstract: The use of interactive and digital software tools in geography lessons enables the learning process to become more engaging and effective. Their use allows students to quickly and easily master the topic, strengthen their practical skills, and actively participate in the lesson. During the lesson process, students complete various tasks to test their knowledge of the topic, identify their mistakes, and try to correct them. This transforms them from passive listeners into active participants and provides an opportunity to gain a deeper understanding of the topic.

Keywords: Pedagogical Software Tools, Mentimeter, Padlet, Wordwall.net, LearningApps.org, Kahoot, Plickers, Socrative, Wordize.app, Edu games.uz, Nearpod, iSpring Suite, Microsoft PowerPoint, Canva, Prezi, Quizlet.com

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1. Introduction

The rapid development of information and communication technologies is causing the formation of new pedagogical approaches in the education system. In the modern educational process, the use of digital educational resources and pedagogical software tools plays an important role in developing students' knowledge, skills, and competencies [1], [2]. In particular, in teaching geography, interactive platforms, multimedia tools, and online educational resources serve as effective tools for increasing students' activity in the lesson process, developing independent learning skills, and forming subject-related competencies.

The aim of this article is to analyze the didactic possibilities of modern pedagogical software tools used in geography education and to highlight their importance in forming students' competencies.

2. Methodology

The research process employed methods such as analysis of scientific and pedagogical literature, comparative analysis, statistical methods, generalization, and systematization. These methods provided a comprehensive study of theoretical approaches and practical experiences related to the use of pedagogical software tools in geography education.

In addition, the didactic possibilities of modern pedagogical software tools were analyzed, with a focus on their role in improving the learning process, increasing student engagement, and developing students' competencies. Based on the collected data, scientific conclusions and practical recommendations were formulated.

3. Results and Discussion

The correct and appropriate use of pedagogical software tools in different parts of the lesson is a very important process. According to their use in different parts of the

lesson, they are divided into different groups [3]. Their use in different parts of the lesson requires pedagogical skills and ICT competencies [4]. Below are pedagogical software tools and recommendations for their use in the educational process (Table 1).

Table 1. Pedagogical software tools and their use in the educational process

No	Lesson parts	Pedagogical software tools	Platform functions
1	Introduction (greeting, writing the topic, attendance)	Mentimeter; Padlet	Engaging students in the lesson, collecting opinions, initial diagnostics, organizing interactive communication
2	Revising the previous topic	Wordwall.net; LearningApps.org; Kahoot; Plickers; Socrative; Wordize.app; Edu games.uz	Anagrams, map work, digital tasks, quizzes; geographical location, crosswords, image-based tasks; interactive quizzes; online tests; matching games
3	Explaining a new topic	Nearpod; iSpring Suite + Microsoft PowerPoint; Canva; Prezi	Interactive presentations; AI-based generation of more than 10 types of images corresponding to text; infographics and presentations; animated and interactive visual presentations
4	Reinforcing the new topic	Socrative; Wordize.app; Wordwall.net; LearningApps.org; Wheel of Names; Edu games.uz	Online tests; crosswords, matching games; anagrams, map work, digital tasks, quizzes; geographical location, crosswords, image tasks; random question-answer activities; interactive games and individual competitions
5	Homework	Wordwall.net; Quizlet.com	Anagrams, map work, digital tasks, quizzes; interactive quizzes

In modern education systems, the use of pedagogical software tools has become an important factor in increasing the effectiveness of the learning process, enhancing students' interest in lessons, and forming an interactive learning environment [5], [6]. In particular, in teaching geography, the use of various digital platforms and interactive tools serves to help students acquire knowledge more deeply [7]. In this regard, Mentimeter, Padlet, Wordwall.net, LearningApps.org, Kahoot, Plickers, Socrative, Wordize.app, Edu games.uz, Nearpod, iSpring Suite, Microsoft PowerPoint, Canva, Prezi, and Quizlet.com are becoming important components of the educational process.

Mentimeter is an effective tool for engaging students in the lesson process, collecting opinions and feedback, and conducting initial diagnostics. This platform allows the teacher to analyze students' responses in real time. This helps to organize interactive communication and increase students' activity in the lesson.

Padlet is an important tool in developing students' collaborative skills. Through this platform, students can organize group projects and discussions by posting text, images, videos, and links. This develops their creative and communicative competencies.

Wordwall.net and LearningApps.org platforms allow the creation of interactive tasks in geography education. Through these platforms, anagrams, crosswords, map-based tasks, matching games, and quizzes are organized. As a result, students' logical thinking, memorization of geographical objects, and independent learning skills are developed.

Kahoot and Quizlet.com platforms are effective tools in strengthening students' knowledge. Interactive quizzes and tests increase students' interest in lessons and create a competitive environment. In particular, Quizlet.com provides opportunities to quickly and effectively learn geographical terms, countries, capitals, and natural objects.

Plickers and Socrative platforms enable the automation of knowledge assessment and monitoring processes [8]. Through these platforms, the teacher can quickly evaluate students' answers and analyze results. This increases the effectiveness of the educational process and saves the teacher's time.

Wordize.app is used in geography lessons to organize crosswords, matching exercises, and interactive games. This platform helps students reinforce the topic and organize lessons in an interesting way.

Edu games.uz provides opportunities to organize interactive games and individual competitions. Through this platform, students not only reinforce their knowledge through games but also develop quick thinking and problem-solving skills.

Nearpod is an effective tool for creating interesting and interactive presentations in geography. Through this platform, the teacher can organize lessons by combining video, animation, tests, and virtual excursions. This increases the visualization and effectiveness of lessons.

Canva and Prezi platforms are widely used in creating presentations and infographics [9], [10]. Canva allows the creation of infographics, diagrams, and presentations, while Prezi enables the creation of animated and interactive visual presentations. These tools play an important role in explaining geographical processes visually.

In addition, iSpring Suite and Microsoft PowerPoint are effective tools for creating modern presentations. The possibility of creating text-based images, diagrams, and multimedia elements using artificial intelligence increases the visual quality of the learning process [11]. As a result, students' level of understanding and interest in the lesson significantly increases.

Wheel of Names is a tool that helps organize interactive activities based on random selection. This tool is effective in increasing students' activity and encouraging active participation in the lesson [12, 13].

Modern pedagogical software tools serve as an important didactic tool in ensuring interactivity in geography education, developing students' interdisciplinary and digital competencies, organizing independent learning activities, and increasing lesson effectiveness [14, 15]. The effective use of these platforms helps students acquire knowledge and skills that meet the requirements of the modern information society.

4. Conclusion

The use of modern pedagogical software tools in geography lessons is of great importance in increasing the effectiveness of the educational process, enhancing students' interest in the subject, and creating an interactive learning environment. Digital platforms serve to strengthen students' knowledge, develop independent thinking, cooperative learning, and digital competencies. The effective integration of these tools into geography education increases the visual quality, attractiveness, and effectiveness of lessons, creating a basis for students to acquire knowledge, skills, and competencies that meet the requirements of the modern information society.

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