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EFFECTIVE PEDAGOGICAL CONDITIONS FOR DEVELOPMENT OF PROFESSIONAL COMPETENCIES OF FUTURE HISTORY TEACHERS

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ЭФФЕКТИВНЫЕ ПЕДАГОГИЧЕСКИЕ УСЛОВИЯ ДЛЯ РАЗВИТИЯ ПРОФЕССИОНАЛЬНЫХ КОМПЕТЕНЦИЙ БУДУЩИХ УЧИТЕЛЕЙ ИСТОРИИ

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Abstract. The article examines the use of simulations and role-playing activities supported by digital tools as an effective pedagogical condition for developing professional competencies among future history teachers. The study focuses on integrating interactive technologies such as Google Jamboard and Padlet into the learning process to model historical events, debates, and classroom teaching situations. Within these activities, students take on the role of teachers and design lesson plans for virtual classrooms, which allows them to apply subject knowledge, develop pedagogical strategies, and practice communication and classroom management skills. The results indicate that digital simulations and role-playing methods contribute to deeper understanding of historical content, improve collaborative learning, and strengthen professional competencies required for modern teaching practice. The findings highlight the importance of integrating digital tools and experiential learning methods into teacher education programs to create an engaging and professionally oriented learning environment.

Аннотация. Рассматривается использование симуляций и ролевых игр, поддерживаемых цифровыми инструментами, как эффективного педагогического условия для развития профессиональных компетенций будущих учителей истории. Исследование сосредоточено на интеграции интерактивных технологий, таких как Google Jamboard и Padlet, в образовательный процесс для моделирования исторических событий, дебатов и учебных ситуаций в группе. В рамках этих видов деятельности студенты берут на себя роль учителей и разрабатывают планы уроков для виртуальных классов, что позволяет им применять предметные знания, развивать педагогические стратегии и практиковать навыки коммуникации и управления классом. Результаты показывают, что цифровые симуляции и методы ролевого обучения способствуют более глубокому пониманию исторического содержания, улучшают совместное обучение и укрепляют профессиональные компетенции, необходимые для современной педагогической практики. Полученные данные подчеркивают важность интеграции цифровых инструментов и методов обучения через опыт в программы

подготовки учителей для создания увлекательной и профессионально ориентированной образовательной среды.

Keywords: digital simulations, role-playing, professional competencies, pre-service history teachers, interactive learning, project-based learning.

Ключевые слова: цифровые симуляции, ролевые игры, профессиональные компетенции, будущие учителя истории, интерактивное обучение, проектно-ориентированное обучение.

In the context of the rapid development of modern education, the training of future teachers requires not only the acquisition of subject knowledge but also the development of a wide range of professional competencies. For future history teachers, these competencies include the ability to interpret historical events, organize interactive learning processes, apply digital technologies, and effectively communicate with students. Therefore, teacher education programs increasingly focus on innovative teaching methods that promote active learning and professional skill development.

One of the most effective approaches in this context is the use of simulations and role-playing activities supported by digital tools. These methods allow students to actively participate in the learning process by recreating historical events, debates, and decision-making situations. Through such activities, students are able to analyze historical processes, understand different perspectives, and develop critical thinking skills [1].

Digital platforms and collaborative online tools significantly expand the possibilities of these pedagogical approaches. Tools such as online interactive boards and collaborative environments allow students to work together, visualize ideas, share resources, and present their results in a dynamic format. The integration of such technologies into teacher education contributes to the creation of an engaging and interactive learning environment that reflects the realities of modern digital education.

In addition, simulations and role-playing activities help future teachers develop important professional skills, including lesson planning, classroom management, teamwork, and communication. By assuming the role of teachers and designing lessons for virtual classrooms, students gain practical experience that prepares them for real teaching situations. Despite the increasing interest in digital technologies in education, the potential of digital simulations and role-playing activities in the professional training of future history teachers remains insufficiently explored. Therefore, the purpose of this study is to examine the effectiveness of simulations and role-playing activities supported by digital tools in the development of professional competencies among pre-service history teachers [2].

Materials and Methods

The empirical study was conducted during the 2024–2025 academic year at the Sherkhan Murtaza International Taraz Innovative Institute. A total of 120 undergraduate students specializing in History education participated in the research. The participants were second- and third-year students aged 19–21 years, who were enrolled in courses related to teaching methodology and modern educational technologies. For the purpose of the experiment, the participants were divided into two groups: an experimental group (60 students) and a control group (60 students). The control group studied using traditional teaching methods, including lectures, textbook-based discussions, and standard classroom presentations. The experimental group participated in learning activities that included digital simulations and role-playing exercises supported by online collaborative tools. The pedagogical experiment lasted one academic semester (16 weeks) and consisted of three main stages:

1. *Preparatory stage* (Weeks 1–3). During this stage, students were introduced to the objectives of the research and trained to use digital collaboration platforms. Short workshops were

organized to familiarize participants with digital tools used for interactive learning. Students practiced basic functions such as creating digital boards, sharing content, and organizing collaborative discussions;

2. *Implementation stage* (Weeks 4–13). At this stage, students in the experimental group participated in a series of eight simulation-based learning sessions. Each session lasted 90 minutes and focused on modeling historical events or classroom teaching situations.

Students worked in groups of 4–5 participants and were assigned roles such as historical figures, moderators, analysts, or teachers. The tasks included: a) Simulation of historical debates (for example, discussions about major political decisions or historical conflicts); b) Role-playing activities representing historical negotiations or diplomatic meetings; c) Development of lesson plans on historical topics for virtual classrooms; d) Presentation of teaching strategies and interactive activities designed for school students.

Students used digital collaborative tools to visualize historical timelines, create concept maps, organize arguments, and present their lesson plans.

3. *Evaluation stage* (Weeks 14–16). The final stage involved the assessment of students' professional competencies and the analysis of the collected data. Several methods were used to evaluate the outcomes of the experiment.

The research instruments included: a) Observation protocols used during the simulation sessions; b) Student questionnaires consisting of 15 questions designed to measure motivation, engagement, and perceived effectiveness of the learning activities; c) Assessment of student projects, including lesson plans and teaching presentations; d) Peer evaluation, where students evaluated the performance of their classmates during role-playing activities.

Professional competencies were evaluated according to four main criteria: 1. Subject knowledge (understanding and interpretation of historical events); 2. Pedagogical skills (ability to design lessons and explain historical concepts); 3. Communication skills (participation in discussions and debates); 4. Collaborative skills (ability to work effectively in a group).

Each criterion was assessed using a five-point scale (1 = very low level, 5 = very high level).

The collected data were analyzed using descriptive statistical methods, including percentage analysis and comparison of average scores between the control and experimental groups. This analysis made it possible to determine the effectiveness of digital simulations and role-playing activities in the development of professional competencies among future history teachers. The research methodology included several data collection methods. Observation was used to monitor students' participation and interaction during the activities. Questionnaires were distributed to evaluate students' perceptions of the learning experience and the effectiveness of the digital tools. In addition, the analysis of students' projects and lesson plans was conducted to assess the development of their professional competencies. The collected data were analyzed using qualitative and quantitative approaches. The study focused on evaluating the development of subject knowledge, pedagogical skills, communication abilities, and collaboration skills among the participants.

Results and Discussion

The analysis of the collected data demonstrated a significant difference in the level of professional competency development between students in the experimental and control groups. At the beginning of the experiment, both groups showed approximately similar levels of professional competencies. The preliminary assessment indicated that most students demonstrated low to medium levels of pedagogical and communicative skills, which is typical for undergraduate students who are at the early stages of teacher training. After the implementation of simulation-based and role-playing activities supported by digital tools, noticeable improvements were observed in the experimental group. Students became more actively involved in discussions, demonstrated stronger analytical

thinking, and showed greater confidence when presenting teaching materials and explaining historical topics. The comparative analysis of the final assessment results is presented in Table 1.

Table 1

DEVELOPMENT OF PROFESSIONAL COMPETENCIES AMONG STUDENTS, %

<i>Level of competency</i>	<i>Control group (before)</i>	<i>Control group (after)</i>	<i>Experimental group (before)</i>	<i>Experimental group (after)</i>
High	12	18	10	38
Medium	46	50	48	47
Low	42	32	42	15

As shown in Table 1, the proportion of students demonstrating a high level of professional competencies in the experimental group increased from 10% to 38%, while the number of students with a low level decreased significantly from 42% to 15%. In contrast, the control group, which studied using traditional teaching methods, showed only minor improvements. The percentage of students with a high competency level increased slightly from 12% to 18%, while the proportion of students with low competency levels decreased from 42% to 32%. A more detailed analysis of the competency indicators revealed improvements in several key areas.

Subject knowledge. Students participating in simulation activities demonstrated a deeper understanding of historical processes and were able to analyze historical events from multiple perspectives. Approximately 72% of students in the experimental group successfully applied historical analysis during debates and discussions, compared to 49% in the control group.

Pedagogical skills. The ability to design lesson plans and organize teaching activities improved significantly. After the experiment, 68% of students in the experimental group were able to create well-structured lesson plans incorporating interactive teaching methods, while in the control group this figure reached 45%.

Communication skills. Students involved in role-playing activities became more confident when presenting ideas and participating in discussions. According to peer evaluation and observation results, 74% of experimental group participants demonstrated improved communication and presentation skills.

Collaborative skills. Working in small groups using digital collaboration platforms contributed to the development of teamwork skills. Approximately 79% of students in the experimental group showed a high level of participation in group tasks and collaborative problem solving.

The questionnaire results also confirmed the effectiveness of the applied teaching methods. When asked about the usefulness of simulations and role-playing activities:

84% of students reported that these methods helped them better understand historical material.

81% of students indicated that digital tools improved collaboration and discussion.

76% of students stated that designing lessons for virtual classrooms helped them feel more prepared for their future teaching career.

These results indicate that the integration of digital simulations and role-playing methods significantly enhances the development of professional competencies among future history teachers. Such methods encourage active learning, promote collaboration, and provide opportunities for students to apply theoretical knowledge in practical teaching situations.

Overall, the findings support the idea that combining interactive pedagogical methods with digital technologies creates a more effective and engaging educational environment for teacher training. To provide a more detailed analysis of competency development, the average scores of professional competencies were calculated using a five-point evaluation scale (1 — very low level, 5

— very high level). The results of the comparative analysis between the control and experimental groups are presented in Table 2.

Table 2
AVERAGE SCORES OF PROFESSIONAL COMPETENCIES (5-POINT SCALE)

<i>Competency indicator</i>	<i>Control group (before)</i>	<i>Control group (after)</i>	<i>Experimental group (before)</i>	<i>Experimental group (after)</i>
Subject knowledge	3.1	3.4	3.0	4.2
Pedagogical skills	2.9	3.2	2.8	4.1
Communication skills	3.0	3.3	3.0	4.3
Collaborative skills	3.2	3.5	3.1	4.4
Average score	3.05	3.35	2.98	4.25

The data presented in Table 2 show that both groups demonstrated some improvement during the semester; however, the progress in the experimental group was significantly higher. The average competency score in the experimental group increased from 2.98 to 4.25, indicating a substantial improvement in professional readiness. In comparison, the control group showed a moderate increase from 3.05 to 3.35. The most significant growth in the experimental group was observed in collaborative skills (from 3.1 to 4.4) and communication skills (from 3.0 to 4.3). This improvement can be explained by the active use of group-based simulations and role-playing activities, which required students to interact, discuss historical topics, and collectively design teaching materials. Similarly, the development of pedagogical skills increased from 2.8 to 4.1, reflecting the positive influence of lesson planning activities and simulated teaching situations. Students gained practical experience in structuring lessons, selecting appropriate teaching methods, and presenting historical content effectively. In addition to the analysis of competency development, a questionnaire survey was conducted among students in the experimental group to evaluate their perceptions of the implemented teaching methods. The questionnaire consisted of 15 questions aimed at identifying students' attitudes toward simulation-based learning and the use of digital tools in the educational process. The analysis of the responses revealed generally positive attitudes toward the use of simulations and role-playing activities supported by digital technologies. A large majority of participants noted that these methods significantly improved their understanding of historical material. In particular, 84% of the respondents stated that simulation activities helped them better analyze historical events and understand different perspectives on historical processes.

Furthermore, 81% of students reported that the use of digital collaborative tools improved interaction and cooperation within their groups. According to their responses, online platforms facilitated the exchange of ideas, joint problem-solving, and the visualization of historical concepts. The survey also indicated that 76% of students believed that designing lessons for virtual classrooms increased their confidence in their future professional activities as teachers. Many participants emphasized that such tasks helped them better understand the structure of a history lesson and the importance of interactive teaching strategies. In addition, 72% of students noted that role-playing activities improved their communication and presentation skills, particularly in the context of explaining historical concepts and participating in discussions or debates.

At the same time, a smaller proportion of respondents (18%) reported certain difficulties when using digital tools, mainly related to limited technical experience or the initial unfamiliarity with some platforms. However, most of these students indicated that these difficulties decreased as they gained more practice during the course. Overall, the results of the questionnaire confirm that simulation-

based learning supported by digital technologies is perceived by students as an effective and engaging method that enhances both subject understanding and professional skill development.

The results of the study demonstrate that the use of simulations and role-playing activities supported by digital tools has a positive impact on the development of professional competencies among future history teachers. First, students showed a higher level of engagement and motivation during the learning process. Interactive activities encouraged active participation and allowed students to move beyond passive learning. By recreating historical situations and debates, students were able to explore historical topics more deeply and develop analytical thinking.

Second, the role-playing format provided an opportunity for students to experience the responsibilities of a teacher. Designing lessons for virtual classrooms required them to apply theoretical knowledge in practical situations. As a result, students improved their ability to organize learning activities, formulate clear explanations, and select appropriate teaching methods.

Third, the use of digital tools facilitated collaboration and communication among students. Online platforms allowed participants to share ideas, provide feedback, and jointly develop educational materials. This collaborative environment contributed to the development of teamwork skills, which are essential for professional teaching practice. Another important result was the improvement of students' digital competencies. Through the use of interactive platforms, students gained experience in integrating digital resources into their teaching strategies. This skill is particularly important in modern education, where digital literacy has become an essential component of professional competence. Furthermore, simulations and role-playing activities helped students understand the complexity of historical interpretation. By analyzing historical events from different perspectives and engaging in debates, students developed a more comprehensive understanding of historical processes. The findings of this study support the idea that experiential learning methods combined with digital technologies can significantly enhance the effectiveness of teacher education programs. These methods provide opportunities for students to apply theoretical knowledge, develop practical skills, and prepare for real teaching situations.

Conclusion

The study confirms that simulations and role-playing activities supported by digital tools represent an effective pedagogical condition for the development of professional competencies among future history teachers. The integration of these methods into teacher education programs contributes to the development of subject knowledge, pedagogical skills, communication abilities, and collaborative competencies. In addition, the use of digital platforms promotes the development of digital literacy, which is an essential requirement for modern educators [3].

The results also indicate that experiential learning approaches, such as simulations and role-playing, help create an interactive and student-centered learning environment. Such an environment encourages active participation, critical thinking, and practical application of knowledge.

Therefore, it is recommended that teacher education institutions incorporate digital simulations and role-playing activities into their curricula. This approach can improve the quality of teacher training and better prepare future educators for the challenges of contemporary education.

Future research may focus on expanding the use of these methods in other subject areas and exploring their long-term impact on professional teaching practice.

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