HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

METHODOLOGY OF USING DIGITAL EDUCATIONAL TOOLS IN DEVELOPING STUDENTS' CREATIVE SKILLS

Ibragimova Dilso'z Choriyevna
Teacher at "Alimov's School", a non-state private school, Karshi city
https://doi.org/10.5281/zenodo.23067213

Abstract: The article examines the pedagogical and methodological potential of using digital educational tools to develop students' creative skills in higher education. Particular attention is paid to digital platforms, multimedia resources, interactive tasks, virtual laboratories, cloud technologies, collaborative learning environments and artificial intelligence-based tools. Their potential contribution to students' independent thinking, problem-solving abilities, idea generation and production of creative outcomes is analyzed. Based on a systematic review of relevant academic studies, the major dimensions of digital competence and the pedagogical conditions necessary for its effective implementation are identified. The findings indicate that the simple introduction of digital technologies does not automatically improve creativity. Their educational value depends on purposeful instructional design, problem-based tasks, project activities, collaboration and reflective learning. A methodological model consisting of motivational, content-practical, creative and reflective-evaluative stages is proposed.

Keywords: digital education, creative skills, digital competence, interactive learning, innovative pedagogy, multimedia, virtual environment, independent learning, creative thinking, digital platform, educational technology, student.

Annotatsiya: Mazkur maqolada oliy ta'lim jarayonida talabalarning ijodiy ko'nikmalarini shakllantirishda raqamli ta'lim vositalaridan foydalanishning pedagogik va metodik imkoniyatlari tahlil qilingan. Tadqiqotda raqamli platformalar, multimedia vositalari, interaktiv topshiriqlar, virtual laboratoriyalar, bulutli texnologiyalar, sun'iy intellektga asoslangan dasturlar hamda hamkorlikda ishlash vositalarining talabalarning mustaqil fikrlashi, muammoni hal etishi, yangi g'oyalar ishlab chiqishi va ijodiy mahsulot yaratish qobiliyatiga ta'siri yoritilgan. Ilmiy adabiyotlarni tizimli tahlil qilish asosida raqamli kompetensiyaning oliy ta'limdagi asosiy tarkibiy qismlari aniqlangan.

Kalit so'zlar: raqamli ta'lim, ijodiy ko'nikma, raqamli kompetensiya, interaktiv ta'lim, innovatsion pedagogika, multimedia, virtual muhit, mustaqil ta'lim, kreativ fikrlash, raqamli platforma, ta'lim texnologiyasi, talaba.

Аннотация: В статье анализируются педагогические и методические возможности использования цифровых образовательных средств в формировании творческих навыков студентов высших образовательных учреждений. Рассматривается потенциал цифровых платформ, мультимедийных ресурсов, интерактивных заданий, виртуальных лабораторий, облачных технологий, инструментов совместной работы и систем на основе искусственного интеллекта в развитии самостоятельного мышления, способности решать проблемы, генерировать новые идеи и создавать творческие продукты. На основе систематического анализа научной литературы определены основные направления развития цифровой компетентности студентов и условия ее эффективного применения в образовательном процессе. Установлено, что использование цифровых технологий само по себе не гарантирует развития

HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

творческих способностей; необходима их интеграция с конкретными педагогическими целями, проблемными заданиями, проектной деятельностью и рефлексией. В статье предложена методическая модель, включающая мотивационный, содержательно-практический, творческий и рефлексивно-оценочный этапы.

Ключевые слова: цифровое образование, творческие навыки, цифровая компетентность, интерактивное обучение, инновационная педагогика, мультимедиа, виртуальная среда, самостоятельное обучение, креативное мышление, цифровая платформа, образовательные технологии, студент.

INTRODUCTION

The rapid development of digital technologies is fundamentally transforming the content, methods and organizational forms of higher education. In today's educational process, the student is regarded not merely as a subject who acquires ready-made knowledge, but as an active participant capable of searching for, analyzing and processing information, generating new ideas and creating practical products. For this reason, the use of digital educational tools is becoming an important pedagogical factor in developing students' creative potential[1].

The UNESCO Global Education Monitoring Report 2023 identifies higher education as the education sector with the highest level of digital technology use. At the same time, the report emphasizes that the effectiveness of digital technologies in education depends less on their availability than on their pedagogically purposeful use. Hence, the main issue is not simply introducing technology into the classroom, but developing a methodology for using it as a means of organizing students' creative activity.

LITERATURE REVIEW

Issues of digital education and the development of students' digital competence have been widely studied in international pedagogical research. In a systematic review conducted by Zhao, Pinto Llorente and Sánchez Gómez in the Web of Science and Scopus databases, 1,410 articles were initially identified; after duplicates and studies not meeting the established criteria were excluded, 33 articles were included in the final analysis. The review found that 61% of the articles focused on determining the level of digital competence of students and teachers. This result indicates the need to study digital competence as an important component of the educational process[2].

Sánchez-Caballé, Gisbert-Cervera and Esteve-Mon analyzed 126 documents from three academic databases and found that university students' digital competence covers such areas as information management, content creation, communication, technical skills, problem solving and strategic activity. More recent studies interpret the digital learning ecosystem as an integration of the virtual environment, digital tools and pedagogical methods. Thus, existing scholarly views call for a deeper study of the methodological potential of digital tools in developing creative activity.

RESEARCH METHODOLOGY

Methodologically, the study was based on systematic analysis, comparative analysis, pedagogical observation, content analysis, generalization and methodological modeling. The theoretical basis of the research comprised scholarly articles on developing digital competence in higher education, reports of international organizations and academic sources on pedagogical technologies. In analyzing statistical data, quantitative indicators reported in existing empirical studies were used.

HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

Five main criteria were defined for assessing students' creative skills: 1) idea generation; 2) originality of ideas; 3) flexibility of thinking; 4) independent decision-making; 5) quality of the digital product created. Each criterion can be assessed on a 5-point scale, with a maximum total score of 25 points[3]. The methodological model consists of four stages: motivational, content-practical, creative and reflective-evaluative.

DISCUSSION AND RESULTS

Analyzing the potential of digital educational tools for developing students' creative skills first requires identifying the pedagogical relationship between digital technology and creativity. Creative skill is not limited to reproducing existing knowledge; it manifests itself in generating new ideas, finding alternative solutions to a problem, applying existing information in a new context and creating a practical product. Digital educational tools, in turn, make it possible to accelerate this process, organize multi-variant activities and present results visually[4].

The first important finding shows that the use of digital tools must be directed toward a pedagogical goal. Simply showing an electronic presentation or a video does not automatically develop a student's creativity. To achieve this, a digital tool should be combined with a problem situation, an open-ended question, a project, a design task or independent inquiry. For example, instead of reading ready-made material, students may be asked to develop three alternative solutions to a specific problem, present them on a digital platform and discuss them with their group members[5].

The second finding shows that digital content creation is directly linked to creative skills. When creating an infographic, a video clip, a podcast, an electronic presentation, a digital map, an interactive test or a project, a student simultaneously searches for, selects and analyzes information, carries out design work and makes communicative decisions[6]. The fact that the scholarly literature identifies content creation as a separate component of digital competence also supports this conclusion.

The third finding highlights the importance of collaborative digital activity. Through cloud-based documents, virtual whiteboards and project platforms, students can work together on a single product, with each student making an individual contribution to the common outcome. This approach creates conditions for the parallel development of communicative, organizational and creative skills. In project-based learning in particular, the use of digital platforms enables students to independently manage the entire process, from planning an idea to presenting the final product[7].

The fourth finding points to the need for a differentiated approach to the use of digital tools. The systematic review by Zhao and co-authors, covering 33 studies, noted that students' digital competence is relatively high in simple and basic tasks but declines in complex digital activities. Therefore, rather than assigning tasks of the same complexity to all students, it is advisable for the teacher to create a system of tasks that become progressively more complex. At the first stage, students may be assigned information search; at the second, information analysis; at the third, creation of new content; and at the fourth, development of an independent project[8].

The fifth finding reveals new opportunities offered by artificial intelligence tools. A systematic review published in 2026, covering 67 empirical studies from 2022–2025, showed that generative AI tools such as ChatGPT, when combined with inquiry-based and pedagogically guided activities, can support idea generation, metacognitive control and argumentation[9]. At the same time, uncontrolled use of the technology may create a risk of excessive cognitive offloading onto technology. Therefore, artificial intelligence should be used not as a tool that produces ready-made answers in place of the

HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

student, but as a means of expanding ideas, generating questions and comparing alternative solutions[10].

The sixth finding shows the need to improve the methodology for assessing creative skills. Assessing a student's creative activity solely on the basis of the final product is insufficient. The number of ideas generated during the process, their originality, the use of alternative solutions, independent decision-making, teamwork and the quality of the final product should be assessed together. In the proposed 25-point system of criteria, each indicator can be awarded 0–5 points. For example, from a methodological standpoint, 0–10 points may be interpreted as a low level of creative activity, 11–17 points as medium, 18–21 points as high and 22–25 points as very high.

The effectiveness of using digital tools also depends on the technical capacities of the learning environment. The UNESCO 2023 report noted that the impact of digital technologies on education is not the same in all settings, and that technology use varies depending on the country, socio-economic conditions, teacher preparedness and level of education. Consequently, when introducing digital education in higher education institutions, it is important not merely to increase the number of platforms, but also to ensure internet quality, availability of devices, teachers' digital competence and equal access for students[11].

Overall, the results of the study show that the effect of digital educational tools on developing creative skills depends on three conditions: first, the technology must serve a clear pedagogical goal; second, the student must be an active content creator rather than a passive user; and third, the outcome must be assessed on the basis of clear criteria. On this basis, integrating digital tools into the educational process can be regarded as a methodological means of developing students' competencies in creative thinking, solving problem situations, collaboration and independent decision-making.

Conclusion. The use of digital educational tools in developing students' creative skills is one of the important methodological directions of modern higher education. The results of the study show that it is not the technology itself, but the pedagogical purpose for which it is used, that is of decisive importance. Digital platforms, multimedia, virtual environments, collaboration tools and artificial intelligence technologies become more effective when combined with problem-based, project-based and creative tasks. It is also advisable to assess creative skills on the basis of the number of ideas, originality, flexibility, independence and product quality. Therefore, the methodology of using digital tools in higher education should be organized on the principles of pedagogical purpose, student activity and systematic assessment of outcomes.

REFERENCES

1. UNESCO. Global Education Monitoring Report 2023: Technology in Education: A Tool on Whose Terms? Paris: UNESCO, 2023.
2. Zhao Y., Pinto Llorente A.M., Sánchez Gómez M.C. Digital competence in higher education research: A systematic literature review // Computers & Education. 2021. Vol. 168. Article 104212. DOI: 10.1016/j.compedu.2021.104212.
3. Sánchez-Caballé A., Gisbert-Cervera M., Esteve-Mon F. The digital competence of university students: A systematic literature review // Aloma: Revista de Psicologia, Ciències de l'Educació i de l'Esport. 2020. Vol. 38, No. 1. P. 63–74. DOI: 10.51698/aloma.2020.38.1.63-74.

HSR (LONDON),
HOUGHTON STREET REVIEW JOURNAL
ISSN: 2058-5519|Impact factor-15.9
http://houghtonstreetreview.com/index.php/hsr

4. Sotelo-Núñez A.C., Herrera Rojas J.J., Herrera Rojas M.Z., López-Regalado O. Competencia digital en estudiantes universitarios: Una revisión sistemática // Horizontes Revista de Investigación en Ciencias de la Educación. 2024. Vol. 8, No. 34.
5. Bojórquez et al. Digital competence learning ecosystem in higher education: A mapping and systematic review of the literature. 2024.
6. Redecker C. European Framework for the Digital Competence of Educators: DigCompEdu. Luxembourg: Publications Office of the European Union, 2017.
7. Ferrari A. DIGCOMP: A Framework for Developing and Understanding Digital Competence in Europe. Luxembourg: European Commission, 2013.
8. OECD. The Future of Education and Skills 2030: OECD Learning Compass 2030. Paris: OECD, 2019.
9. European Commission. Digital Education Action Plan 2021–2027: Resetting Education and Training for the Digital Age. Brussels: European Commission, 2020.
10. Ananiadou K., Claro M. 21st Century Skills and Competences for New Millennium Learners in OECD Countries. OECD Education Working Papers. Paris: OECD, 2009.
11. Zawacki-Richter O., Marín V.I., Bond M., Gouverneur F. Systematic review of research on artificial intelligence applications in higher education – where are the educators? // International Journal of Educational Technology in Higher Education. 2019. Vol. 16. Article 39.