МРНТИ 14.85.25 DOI 10.48501/5605.2025.20.19.015

Ismailova G. K. [1], Soltanbek A.Zh.[1]
[1]Shakarim Semey University
[1]Kazakhstan, Semey
e-mail: soltanbekaruzhan@mail.ru

USING MOBILE TECHNOLOGIES IN THE CLASSROOM TO FOSTER COLLABORATION AND INNOVATION

Abstract. The purpose of this paper is to investigate the impact of mobile interactive technologies on promoting the development of students' innovative ability in higher education and propose a solution to the problem of consistent recommendations. First, we identify the importance of students' innovative ability and identify the potential applications of mobile interactive technologies in this context. At present, it is necessary to create a teaching method that would promote the development of moral principles in human life. Moreover, mobile interactive technologies have the potential to engage students more actively in the learning process, enhancing their critical thinking and problem-solving skills. By integrating these technologies into the curriculum, educators can foster a more dynamic and interactive learning environment. This paper also discusses the challenges and limitations associated with implementing mobile interactive technologies and offers practical recommendations for educators.

Keywords: technological progress, educational environment, innovative technologies, qualities of a modern personality, effective methods

Исмаилова Г.К.[1], Солтанбек А. Ж.[1]
[1]Shakarim University Semey
[1]Казахстан, Семей
e-mail: soltanbekaruzhan@mail.ru

ИСПОЛЬЗОВАНИЕ МОБИЛЬНЫХ ТЕХНОЛОГИЙ В КЛАССЕ ДЛЯ СТИМУЛИРОВАНИЯ СОТРУДНИЧЕСТВА И ИННОВАЦИЙ

Аннотация. Целью данной статьи является исследование влияния мобильных интерактивных технологий на содействие развитию инновационных способностей студентов в сфере высшего образования и предложение решения проблемы последовательных рекомендаций. Во-первых, мы определяем важность инновационных способностей студентов и определяем потенциальные применения мобильных интерактивных технологий в этом контексте. В настоящее время необходимо создать метод обучения, который будет способствовать развитию моральных принципов в жизни человека. Более того, мобильные интерактивные технологии обладают потенциалом для более активного вовлечения студентов в процесс обучения, повышая их критическое мышление и навыки решения проблем. Интегрируя эти технологии в учебную программу, преподаватели могут способствовать созданию более динамичной и интерактивной среды обучения. В данной статье также обсуждаются проблемы и ограничения, связанные с внедрением мобильных интерактивных технологий, и предлагаются практические рекомендации для преподавателей.

Ключевые слова: технологический прогресс, образовательная среда, инновационные технологии, качества современной личности, эффективные методы

Исмаилова Г. К.[1], Солтанбек А.Ж.[1]
[1]Shakarim University Semey
[1]Қазақстан, Семей
e-mail: soltanbekaruzhan@mail.ru

СЫНЫПТА СЕРІКТЕСТІК ПЕН ИННОВАЦИЯНЫ ЖАНДАНДЫРУ МАҚСАТЫНДА МОБИЛЬДІК ТЕХНОЛОГИЯЛАРДЫ ҚОЛДАНУ

Аннотация. Бұл жұмыстың мақсаты – жоғары оқу орындарында студенттердің инновациялық қабілетін дамытуға жәрдемдесудегі мобильді интерактивті технологиялардың әсерін зерттеу және дәйекті ұсыныстар мәселесінің шешімін ұсыну. Біріншіден, біз студенттердің инновациялық қабілетінің маңыздылығын анықтаймыз және осы контексте мобильді интерактивті технологиялардың әлеуетті қолданбаларын анықтаймыз. Қазіргі уақытта адам өмірінде адамгершілік ұстанымдарды дамытуға ықпал ететін оқыту әдістемесін жасау қажет. Сонымен қатар, мобильді

интерактивті технологиялар студенттерді оқу процесіне белсендірек тартуға, олардың сыни ойлауы мен проблемаларды шешу дағдыларын арттыруға мүмкіндік береді. Бұл технологияларды оқу бағдарламасына кіріктіру арқылы мұғалімдер динамикалық және интерактивті оқу ортасын қалыптастыра алады. Бұл мақалада сонымен қатар мобильді интерактивті технологияларды енгізуге байланысты қиындықтар мен шектеулер талқыланады және мұғалімдерге практикалық ұсыныстар ұсынылады.

Түйін сөздер: технологиялық прогресс, білім беру ортасы, инновациялық технологиялар, заманауи тұлға қасиеттері, тиімді әдіс-тәсілдер

Students' innovative abilities play a key role both in their personal development and in society as a whole. They contribute to the creation of competitive specialists in demand in the labor market, as employers value creativity and the ability to offer unconventional solutions. Developing innovative thinking improves the quality of education, allowing students to better absorb the material and apply it in practice through project work, research and the introduction of technologies. In addition, such abilities contribute to the development of the economy and technology, as students with innovative thinking often create new start-ups and technologies, which leads to economic growth. Although there have been some successes with the use of mobile interactive technologies in higher education, more research is still needed to fully understand how they affect students' growth as creative thinkers [1; 26].

They also help to solve global problems, including environmental, social and technological challenges. It is also important that innovative thinking contributes to the personal growth of students, revealing their talents, strengthening self-confidence and developing the ability to adapt to changes [2; 15121]. Thus, students' innovative abilities play a vital role in their professional success and the development of society as a whole. Although some studies have explored the application of mobile interactive technologies in higher education, existing methods still have some limitations. First, existing learning resource recommendation models often ignore the influence of individual differences among students and mobile interactive social relationships, resulting in recommendations that lack personalization and specificity[3; 395]. The aim of the study is to establish a connection between the use of innovative technologies and the learning motivation of students, improving the quality of the educational process. The purpose of our experiment was to assess how mobile interactive technologies (MIT) affected the growth of students' creative capacities. According to the hypothesis, students who use MIT would show more growth in their capacity for creativity, critical thinking, problem-solving, and teamwork than those who use more conventional teaching techniques.

The 40 students studying in 9-11 grades from school in Borodulikha area, who took part were split into two groups: 20 in the experimental group, which used MIT, and 20 in the control group, which used conventional methods. The control group worked using traditional tools for four weeks, while the experimental group completed tasks and collaborated on a final project using platforms including Zoom, Trello, and educational apps. The baseline skills were evaluated by pre-tests, weekly assignments, and a final group project. Forty students between the ages of 14-17 were split into two groups at random: a control group (20 students) that used traditional learning methods (textbooks, class discussions, paper-based assignments), and an experimental group (20 students) that used MIT, which included educational apps like Kahoot! for gamified tasks and Trello for project management, as well as platforms like Google Classroom and Zoom for virtual discussions. The experiment started with pre-tests to assess students' basic innovation abilities, focusing on creativity (via tests based on creative tasks), critical thinking (via logical tasks) and cooperation (team problem-solving exercises). For four weeks, both groups received weekly tasks related to their regular school curriculum. The control group completed the task using traditional methods, while the experimental group relied on MIT for learning and collaboration assistance. For the past two weeks, both groups have been working on a final project that addresses a real-world problem (eg, developing a sustainable solution to reduce plastic use in schools). The control group worked face-to-face with traditional tools, while the experimental group used MIT to collaborate, share ideas, and present their solutions digitally. Both groups have been working on a final assignment for the past two weeks. They had to come up with a sustainable way to cut down on the amount of plastic used in schools, for example. While the experimental group collaborated electronically via MIT, exchanging ideas and presenting their answers digitally, the control group worked in person using conventional tools. To evaluate gains in creativity, critical thinking, problem-solving, and teamwork, pre- and post-tests were given to both groups. Teachers assessed the final projects on the basis of teamwork, creativity, originality, and problem-solving techniques. Activity records in the experimental group were used to monitor MIT usage, and researchers also watched how the students interacted and approached assignments.

Results

Post-test results showed significant improvement in the experimental group compared to the control group. In the area of creativity, the experimental group demonstrated 25% higher results, showing more original ideas and diverse approaches to problem solving. In critical thinking tasks, the experimental group was 30% more accurate, using faster and more effective strategies to solve logical problems. In terms of problem solving, the experimental group's final projects were more innovative, with more creative solutions to real-world problems. Collaboration skills were also higher in the experimental group: the use of tools like Trello helped students better coordinate tasks and maintain effective communication (Table 1).

Skill	Group	Pre-test average score	Post-test average score	Percentage improvement
Creativity	Control group	55%	60%	5%
	Experimental group	54%	75%	21%
Critical thinking	Control group	60%	65%	5%
	Experimental group	61%	79%	18%
Problem-solving	Control group	58%	63%	5%
	Experimental group	59%	78%	19%

Table 1. Pre-test and Post-test Scores for Creativity, Critical Thinking, and Problem-Solving

Figure 1 illustrates how the experimental group's use of mobile interactive technology significantly enhanced their core inventive capabilities. These findings imply that including these technologies into the educational process can greatly improve students' capacity for creativity and problem-solving. According to the statistics, students in this group showed a 25% rise in creativity scores when compared to the control group, indicating a stronger capacity for coming up with unique ideas and using a variety of ways when addressing problems.

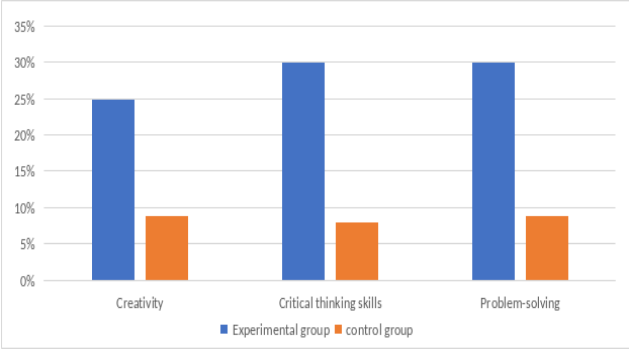

Figure 1: Percentage improvement in creativity, critical thinking, and problem-solving for both the control and experimental groups.

Conclusion

This study highlights how mobile interactive technologies (MIT) can improve students' capacity for innovation in learning environments. The Their critical thinking abilities also increased by 30%, demonstrating better approaches to solving logic-based difficulties. The experimental group's final products were noticeably more creative, demonstrating improved teamwork made possible by Trello and other tools that improved communication and task coordination. These findings imply that incorporating mobile interactive technologies into the classroom might greatly improve students' capacity for creativity and problem-solving, leading to a more interesting and successful learning environment.
investigation showed that MIT integration creates a more dynamic and engaging learning environment in addition to fostering notable gains in creativity, problem-solving, critical thinking, and teamwork. When compared to the control group, the experimental group shown significant improvements, suggesting that using these technologies can help students grasp difficult ideas more deeply and develop their teamwork abilities. Including MIT in the curriculum offers a viable way to equip students to handle the problems of the modern world, as education continues to change in reaction to technology breakthroughs. By using these resources, teachers may design engaging lessons that promote inquiry, teamwork, and creativity, giving children the tools they need to succeed in a society that is becoming more linked and complex by the day. Future studies ought to examine how MIT affects student results over the long run as well as the most effective ways to use it in various educational settings.

List of references:

1. B. Feroz Khan and S. R. A. Samad, "Evaluating online learning adaptability in students using machine learning-based techniques: A novel analytical approach," Education Science and Management, vol. 2, no. 1, pp. 25–34, 2024. https://doi.org/10.56578/esm020103
2. M. Chen, Y. Qi, X. Zhang, and X. Jiang, "An intelligent decision support approach for quantified assessment of innovation ability via an improved BP neural network," Mathematical Biosciences and Engineering, vol. 20, no. 8, pp. 15120–15134, 2023. https://doi.org/10.3934/mbe.2023677
3. Z. Chang and K. Liu, "Construction of a personalized online learning resource recommendation model based on self-adaptation," International Journal of Knowledge Based Development, vol. 13, nos. 2–4, pp. 394–410, 2023. https://doi.org/10.1504/IJKBD.2023.133338

Сведения об авторах/ Авторлар туралы мәліметтер / Information about the authors

Исмаилова Гайнигуль Кабидуллиновна
Должность: К.ф.н, профессор, НАО «Университет имени Шакарима г.Семей», Казахстан,
Почтовый адрес: 071400-071412, Республика Казахстан, г.Семей, ул. Кашаган, 2
Сот. тел: +7 705 174 88 65
E-mail: gainigul_ismailova@mail.ru
Солтанбек Аружан Жандоскызы[2]
Должность: магистрант кафедры иностранных языков, НАО "Университет имени Шакарима города Семей"
Почтовый адрес: 071400-071404, Республика Казақстан, г. Семей, ул. Аймауытова, 178
Сот. тел: +77714867366
E-mail: soltanbekaruzhan@mail.ru
Исмаилова Гайнигуль Кабидуллиновна
Лауазымы: PhD, профессор, "Семей қ.Шәкәрім атындағы университеті" КеАҚ
Пошталық мекен-жайы: 071400-071412, Қазақстан Республикасы, Семей қаласы, Қашаған к-сі, 2
Ұялы. тел: +7 705 174 88 65
E-mail: gainigul_ismailova@mail.ru
Солтанбек Аружан Жандосқызы[2]
Лауазымы: шет тілдер кафедрасының магистранты, "Семей қ.Шәкәрім атындағы университеті" КеАҚ
Пошталық мекен-жайы: 071400-071404, Қазақстан Республикасы, Семей қаласы, Аймауытов к-сі, 178
Ұялы. тел: +77714867366
E-mail: soltanbekaruzhan@mail.ru
Ismailova Gainigul Kabidullinovna[1]
Position: PhD, professor,, Shakarim University of Semey
Mailing address: 071400-071412, Republic of Kazakhstan, Semey, Kashagan st., 2
Mob.phone: +7 705 174 88 65
E-mail: gainigul_ismailova@mail.ru
Soltanbek Aruzhan Zhandoskyzy[2]
Position: Master student of the Department of Foreign Languages, Shakarim University of Semey
Mailing address: 071400-071404, Republic of Kazakhstan, Semey, Aimauytova st., 178
Mob.phone: +77714867366
E-mail: soltanbekaruzhan@mail.ru