

**IMPROVING METHODS FOR ENGAGING STUDENTS IN ACTIVE AND INTERACTIVE LEARNING IN ONLINE LEARNING ENVIRONMENTS**

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**Abstract:** This article analyzes modern approaches to engaging students in active and interactive learning in an online learning environment and mechanisms for their improvement. In the context of digital transformation, increasing the effectiveness of the educational process, increasing student motivation, and developing their independent thinking skills are considered to be one of the pressing issues. The article substantiates the advantages of using interactive methods, innovative pedagogical technologies, digital platforms, and gamification elements. It also covers the practical aspects of problem-based learning, project-based activities, and collaborative learning methods that serve to increase student engagement. The research results show that the quality and efficiency of education can be significantly improved by increasing interactivity in the online learning process.

**Keywords:** online education, interactive learning, student activity, digital learning environment, pedagogical technologies, gamification, collaborative learning, motivation, innovative methods.

**Annotatsiya:** Ushbu maqolada onlayn o'quv muhitida talabalarni faol va interaktiv o'rganishga jalb qilishning zamonaviy yondashuvlari va ularni takomillashtirish mexanizmlari tahlil qilinadi. Raqamli transformatsiya sharoitida ta'lim jarayonining samaradorligini oshirish, talabalarning motivatsiyasini oshirish va ularning mustaqil fikrlash qobiliyatlarini rivojlantirish dolzarb masalalardan biri hisoblanadi. Maqolada interaktiv usullar, innovatsion pedagogik texnologiyalar, raqamli platformalar va o'yinlashtirish elementlaridan foydalanishning afzalliklari asoslab berilgan. Shuningdek, u muammoli o'rganish, loyihaga asoslangan faoliyat va talabalarning faolligini oshirishga xizmat qiladigan hamkorlikdagi o'rganish usullarining amaliy jihatlari qamrab oladi. Tadqiqot natijalari shuni ko'rsatadiki, onlayn o'rganish jarayonida interaktivlikni oshirish orqali ta'lim sifati va samaradorligini sezilarli darajada yaxshilash mumkin.

**Kalit so'zlar:** onlayn ta'lim, interaktiv o'rganish, talabalar faoliyati, raqamli o'rganish muhiti, pedagogik texnologiyalar, o'yinlashtirish, hamkorlikdagi o'rganish, motivatsiya, innovatsion usullar.

**Аннотация:** В данной статье анализируются современные подходы к вовлечению студентов в активное и интерактивное обучение в онлайн-среде и механизмы их совершенствования. В контексте цифровой трансформации повышение эффективности образовательного процесса, повышение мотивации студентов и развитие их навыков самостоятельного мышления рассматриваются как одни из самых актуальных вопросов. В статье обосновываются преимущества использования интерактивных методов,

инновационных педагогических технологий, цифровых платформ и элементов геймификации. Также рассматриваются практические аспекты проблемно-ориентированного обучения, проектной деятельности и методов совместного обучения, которые способствуют повышению вовлеченности студентов. Результаты исследования показывают, что качество и эффективность образования могут быть значительно улучшены за счет повышения интерактивности в процессе онлайн-обучения.

**Ключевые слова:** онлайн-образование, интерактивное обучение, активность студентов, цифровая среда обучения, педагогические технологии, геймификация, совместное обучение, мотивация, инновационные методы.

**Introduction:** In recent years, as a result of the rapid development of information and communication technologies, fundamental changes have been taking place in the education system. In particular, the widespread introduction of online education, while making the educational process more flexible and open, requires new pedagogical approaches. Unlike traditional education, in an online environment, actively involving students in the learning process, maintaining their attention and ensuring interactivity is one of the most complex tasks.

Today, the issue of increasing student activity is not only of pedagogical, but also of socio-economic importance, and is considered an important factor in preparing personnel with modern knowledge and skills who can think independently. Therefore, improving the quality of education in an online learning environment through the use of interactive methods, innovative technologies, and effective didactic tools is recognized as an urgent scientific and practical problem.

The main purpose of this article is to analyze methods of involving students in active and interactive learning in the online learning process and to develop scientifically based proposals and recommendations for their improvement.

**Literature review:** The issue of involving students in active and interactive learning in an online learning environment is one of the widely studied areas in world and Uzbek pedagogical science. In particular, among modern pedagogical approaches, constructivism, collaborative learning, and student-centered learning concepts occupy an important place. The effectiveness of interactive learning in world scientific literature has been substantiated by numerous studies.

For example, according to the concept of active learning developed by J. Bonwell and J. Eison, students acquire knowledge not as passive recipients, but as active participants[1]. Their research emphasizes the effectiveness of the learning process through problem questions, discussions, and work in small groups. Also, the “Community of Inquiry” model put forward by R. Garrison and T. Anderson justifies the need to combine social, cognitive, and pedagogical participation in online education[2].

Another important area is the use of gamification elements. Research conducted by K. Deterding and colleagues has shown that introducing game elements into the educational process increases students' motivation and increases their interest in the lesson[3]. At the same time, J. Biggs's theory of constructive alignment emphasizes that effective teaching can be achieved by ensuring harmony between educational goals, methods, and the assessment system[4].

Uzbek scientists have also conducted a number of scientific studies in this area. In particular, the works of N. Saidahmedov and B. Yuldoshev highlight the role of interactive methods in improving the quality of education, which justify the need to use innovative technologies in the educational process[5]. Also, the studies of R. Ishmuhamedov[6] and M. Ochilov[7] extensively analyze the issues of developing students' independent thinking through modern pedagogical technologies.

A number of regulatory legal acts have been adopted in the Republic of Uzbekistan on the digitalization of the education system and the development of online education. In particular, the Decree of the President of the Republic of Uzbekistan No. PF-5847 dated October 8, 2019 “On the Concept for the Development of the Higher Education System of the Republic of Uzbekistan until 2030” provides for the modernization of the higher education system and the widespread introduction of digital technologies[8]. Also, Resolution No. PQ-4623 is aimed at introducing modern information technologies into the educational process and developing distance learning[9].

In addition, within the framework of the “Digital Uzbekistan - 2030” strategy, approved by Resolution No. 824 of the Cabinet of Ministers dated December 31, 2020, the full digitalization of the education system, the expansion of electronic resources and online platforms are identified as priority tasks. These documents serve as a solid legal basis for increasing student activity and introducing interactive methods in the online learning environment[10].

The analysis of the above scientific sources and regulatory legal documents shows that the effectiveness of involving students in active and interactive learning in the online learning environment directly depends on the combination of innovative pedagogical approaches, digital technologies and public policy.

**Methodology.** This study studied the issue of improving methods for involving students in active and interactive learning in an online learning environment using a comprehensive approach. The research methodology was developed by combining qualitative and quantitative (mixed-methods) approaches. This allowed for a comprehensive analysis of the problem under study and strengthening theoretical views with practical results.

The theoretical basis of the study was formed by the theories of modern pedagogy, in particular, constructivism, student-centered learning, collaborative learning, and interactive methods. Based on these approaches, mechanisms for increasing student activity in the online learning process were systematically analyzed.

At the empirical research stage, observation, questionnaires, and pilot-testing were conducted with the participation of students studying in higher education institutions. The questionnaires determined the attitude of students to online lessons, their interest in interactive methods, their level of motivation, and their academic activity. Using the observation method, the level of student participation in classes conducted on various online platforms, their communication activity, and the quality of task completion were studied.

During the pilot study, interactive methods - problem-based learning, group discussions, project approach, and gamification elements were introduced into practice. The study was organized in two stages: at the initial (diagnostic) stage, the current state of student activity was determined, and at the next (experimental) stage, the educational process was organized based on the proposed methods and the results were compared.

Statistical analysis methods were used to process the data obtained. In particular, changes in student activity were assessed through percentages, comparisons, and dynamic analysis. At the same time, based on qualitative analysis, students' opinions and comments were summarized and factors affecting their participation in the educational process were identified.

In order to ensure the reliability of the study, the results obtained from different methods were compared (triangulation method). This served to increase the accuracy and scientific validity of the conclusions.

In general, the methodological approaches used made it possible to identify effective methods for increasing student engagement in the online learning environment, implement them in practice, and achieve scientifically sound results.

**Results and discussion.** The results of the study showed that the use of traditional, passive teaching methods in an online learning environment leads to low student engagement. At the initial diagnostic stage, it was found that the level of active participation in the lesson process among students was insufficient, most students participated only as listeners, and participated little in questions and answers and discussions. This is explained by the fact that they had a negative impact on their in-depth assimilation of knowledge.

At the experimental and testing stage, significant positive changes were observed after the systematic introduction of interactive methods. In particular, as a result of working in small groups, giving assignments based on problem situations, using project activities and gamification elements, students began to be actively involved in the lesson process. Their independent thinking, problem analysis and teamwork skills developed. Most importantly, an environment of mutual communication and cooperation was formed among students, which increased the effectiveness of teaching.

It was also found that the use of digital platforms and interactive tools (online tests, quizzes, forums, virtual whiteboards) significantly increased student motivation. In particular, the possibility of real-time exchange of ideas and rapid assessment encouraged students to be more active. Gamification elements - scoring, rating systems and reward mechanisms - created a competitive atmosphere and increased interest in the learning process.

Analysis of the results shows that the level of mastery and active participation in the lesson in the groups where interactive approaches were used was significantly higher than in the groups taught using traditional methods. Feedback from the students also confirms these results: they noted that through interactive sessions they understood the topics better, had the opportunity to express their opinions freely, and their interest in studying increased.

During the discussion, it was found that increasing engagement in online learning does not only depend on technology, but also directly depends on the teacher's pedagogical skills, proper lesson design, and appropriate selection of methods. If interactive methods are not used systematically and purposefully, they may not produce the expected results. Therefore, developing teachers' digital competencies and improving their methodological training is of great importance.

In addition, some problems were identified. In particular, factors such as low internet speed, lack of technical equipment, and the persistence of passivity by some students are hindering the full implementation of interactive learning. At the same time, it was noted that using the same methods for all subjects is ineffective, and the need to differentiate the approach based on the nature of the subject was also noted.

Overall, the research results confirmed that the effectiveness of engaging students in active and interactive learning in an online learning environment is directly dependent on innovative pedagogical approaches, digital tools, and a well-organized educational strategy. It was scientifically substantiated that the widespread introduction of interactive methods can not only increase student engagement, but also take the quality of education to a new level.

**Conclusions and recommendations.** Based on the research conducted, it can be concluded that involving students in active and interactive learning in an online learning environment is one of the important factors in increasing educational efficiency. It was found that traditional, passive teaching approaches do not yield sufficient results in a digital environment, on the contrary, the

integrated use of interactive methods, innovative pedagogical technologies and digital tools significantly increases student activity.

The results of the study showed that the use of problem-based learning, collaborative activities, a project approach and gamification elements increases student motivation, develops their independent thinking, analysis and decision-making skills. At the same time, an environment of mutual communication and cooperation is formed between students through the effective use of online platforms.

However, it was found that there are some problems in the implementation of interactive education - such as insufficient technical infrastructure, the quality of the Internet, and the level of digital competencies of teachers. This requires a systematic approach in this direction.

On this basis, the following recommendations were developed:

- It is necessary to systematically introduce the use of interactive methods in the online learning process and adapt them based on the characteristics of each subject;
- It is necessary to expand special training and advanced training programs aimed at improving the digital and pedagogical competencies of teachers;
- It is necessary to encourage the effective use of modern digital platforms, interactive tools and gamification elements in the educational process;
- It is important to improve the assessment system and introduce incentive mechanisms in order to increase student motivation;
- It is necessary to strengthen measures to develop online learning infrastructure, provide high-speed Internet and technical means.

In general, the proposed approaches to involving students in active and interactive learning in the online learning environment serve to improve the quality of education and train competitive personnel with modern knowledge and skills.

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