Modern Innovative Teaching Methods in University Level Education: Evaluating Leadership, Implementation, and Student Experience

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ABSTRACT

Modern higher education in Ukraine is at a difficult stage of transformation and complex changes. First of all, this can be explained by the fact that a graduate of a higher education institution today must not only be a qualified specialist in their field, but also possess various competencies that are important for success. This will allow them to be not only competitive, but also to form a positive image for their educational institution, which trains specialists in a particular field. In addition, a modern specialist must be versatile, have a certain level of creativity, be able to solve complex issues in an innovative way, and possess critical thinking skills, which means that the quality of training of specialists in various fields is an important aspect. The purpose of the study is to evaluate the effectiveness of innovative teaching methods in higher education by analyzing theoretical materials and studying practical experience in the use of non-traditional approaches in the training of specialists. The significance of the study is also related to the fact that modern higher education in Ukraine is aimed at developing students' digital competencies and forming their skills in working with special professional programs. All of this requires paying attention to the effectiveness of introducing innovations into the learning and educational process, which will allow us to form an idea of the role of the teacher in the implementation of innovative teaching methods. To achieve the purpose of the study, the author analyzed modern information technologies and social platforms used in educational activities to develop various student competencies. In particular, it has been determined that the use of non-traditional approaches to teaching has a positive effect on the formation of original thinking, professional competencies, creative vision, ability to study the material independently, cooperation skills, and the ability to defend one's own position in higher education students. Innovative methods help to form motivation to achieve academic success and professional growth. The study found that the evaluation of the effectiveness of innovative teaching methods in higher education should be carried out systematically, taking into account various factors influencing the indicators.

Higher education in Ukraine has undergone significant changes in recent years, which has had a positive impact on graduates' performance. Thanks to the reform of the higher education system, we can now observe the prevalence of practically oriented knowledge over theoretical knowledge, the formation of a set of elective and optional disciplines, the expansion of opportunities for student self-expression, and the introduction of competency-based learning in the training of specialists (Smith & Hill, 2018). However, the introduction of innovative teaching methods in the educational process is still a problematic issue due to the peculiarities of building curricula and plans, teachers' qualifications, and material and technical support (Alkhasawnh & Alqahtani, 2019).

However, innovative teaching methods are a reflection of foreign educational policy, where modern computer and digital technologies are part of the educational process (Aljawarneh, 2019). In particular, virtual space is a part of our lives, so it is quite logical that it is also gradually entering the educational process (Al-Fraihat et al., 2020). However, the experience of distance learning and blended learning in connection with the full-scale invasion has shown that the introduction of innovative teaching methods and the use of online learning resources in the classroom needs to be significantly improved. Accordingly, the issue of finding innovative teaching methods in higher education and their evaluation requires detailed consideration.

The aim of the study is to identify the key aspects of introducing innovative teaching methods into the educational space, as well as to evaluate the effectiveness of innovative teaching methods in higher education by analyzing theoretical materials and researching

practical experience in the use of non-traditional approaches in training specialists in the light of the development of digital technologies.

Literature Review

The issue of evaluating the effectiveness of innovative teaching methods in higher education has been studied by a number of domestic and foreign researchers. Thus, Tereshchuk (2023) convinced that innovative teaching methods are a demonstration of the introduction of education for the future. He defines such components as game, virtual, mobile, distance, and digital learning environments as elements of an innovative learning environment. In his opinion, the current situation in Ukraine requires the introduction of a blended learning environment, which is built on distance, virtual, and digital environments. Thus, it is possible to organize a continuous educational process and modernize higher education institutions themselves (Tereshchuk, 2023).

Alexander (2019) also agrees with this opinion. He is convinced that the introduction of innovative teaching methods into the educational environment of a higher education institution is gradual and goes through certain stages. The first is the short-term stage, which lasts up to 2 years and requires the educational institution to create all the prerequisites for distance and blended learning. The second is the medium-term stage, which lasts from 3 to 5 years and involves the formation of a comprehensive view of innovations and the systematic implementation of them within the educational space. The third is the long-term stage, which lasts from 5 to 10 years, aimed at radically rethinking education in higher education institutions and introducing new approaches to learning (Alexander et al., 2019).

Bond and Bedenlier (2019) point out that the introduction of innovative methods allows students to engage in learning and provides an opportunity to receive education under any conditions. However, he also identifies a controversial aspect here, which is that digital technologies can, on the contrary, distract students from learning and greatly simplify the performance of tasks. In particular, using programs based on artificial intelligence, students can do their homework with their help without comprehending its essence, which leads to thoughtless writing of answers to questions (Bond & Bedenlier, 2019).

Rebukha (2022) notes that innovative teaching methods in Ukrainian higher education institutions should be implemented taking into account foreign experience. In her opinion, hybrid courses are quite effective, when students spend most of the learning process in a distance format, but periodically attend face-to-face classes to gain direct knowledge. At the same time, communication in electronic format with the teacher is constant, so this experience of European higher education is effective in domestic conditions. In addition, hybrid learning allows you to gain knowledge at a convenient time and in any conditions, using various technologies, which has a positive effect on the acquisition of digital competencies (Rebukha, 2022).

According to researcher Polyanska (2020), innovative teaching methods allow students to develop digital competence, which in modern conditions is the key to the success of a specialist. In particular, mastering digital technologies allows you to learn how to analyze information in the media, use modern programs, communicate with different target audiences, create an information product, solve business issues, and cooperate. The virtual space has a positive impact on the dissemination of knowledge and improves the ability to analyze information. At

the same time, mastering modern gadgets as part of the training allows you to learn Internet security, be able to follow virtual ethics, and critically analyze information. As a result, a space is created for adaptive learning when students consume educational content as part of acquiring practical skills and through the use of modern technologies. In addition, she is convinced that modern computer-based learning technologies should be built on the principle of emotion analysis, where the program recognizes the facial expressions of students while processing the material and determines the usefulness of such material. She also suggests adding hidden assessment systems to learning systems, which monitor learning indicators and generate reports on student performance (Polyanska, 2020).

Antyushko et al. (2022) argue that the introduction of innovative methods in higher education is due to the lack of qualified specialists with universal skills, the need for quality education, and the importance of developing progressive educational programs. Accordingly, the digital learning strategy should consist of such components as the introduction of digital products into the educational process, the use of experimental teaching methods at different stages of education, adaptation programs according to the individual needs of students, the inclusion of specialized material in the curriculum, the introduction of business education and computer technology into various curricula, and the use of distance learning on an ongoing basis (Antyushko et al., 2022).

The analyzed theoretical basis of the study allows us to conclude that the issue of evaluating innovative teaching methods in higher education in Ukraine is of interest to domestic and foreign researchers. Further consideration of this topic requires focusing on the practical aspects of innovative teaching methods.

Method

The study is based on the use of general scientific research methods, in particular, methods of description, analysis and synthesis, generalization, system analysis, literary analysis, as well as on the basis of a specific scientific method, which included the content analysis method, questionnaire method, and tabular and graphical method. In particular, the method of description was used to determine the features of the innovative teaching method as an approach to educational activities. The method of analysis and synthesis was used to reflect the current situation regarding the use of innovative teaching methods in the higher education system of Ukraine. The method of generalization was used to summarize and display the results obtained. The method of system analysis was used to reflect the patterns in the implementation of digital technologies in the educational activities of higher education institutions in Ukraine. The method of literary analysis was used to analyze scientific works on the introduction of innovative methods in education.

The method of content analysis is to compare the official websites of the selected higher education institutions, which allows us to talk about their focus on modern digital technologies. The questionnaire method was used to conduct a survey among students in order to identify problematic aspects and advantages of introducing innovative teaching methods into the training system in their specialty. The tabular and graphical method was used to visualize the results of the study.

Results

Globalization as a social phenomenon involves the integration of digital technologies into all spheres of life. As a result, the higher education system is also now dependent on digital technologies, as the vision of the complex of training and structural components of the future specialist's education is changing. Therefore, a student must master not only the disciplines of the compulsory cycle related to the specialty, but also elective ones that contribute to the formation of additional competencies. At the same time, the study of both compulsory and elective disciplines should be based on computer technologies and information systems, the mastery of which will allow the student to deepen their knowledge (Almeida & Simoes, 2019).

In addition, the current security situation in Ukraine requires new approaches to lifelong learning, as the traditional form of education is no longer as effective due to the full-scale invasion, and higher education is trying to focus on individual student needs. Therefore, more and more attention is being paid to innovative teaching methods.

In a general sense, "innovative teaching methods" are interpreted as "methods that are designed to organize learning in such a way that more attention is paid to the student, the student is supported during the learning process, and there is constant communication through virtual space between the student and the teacher" (Alzahrani, 2019). Currently, we can identify the following methods of innovative learning that are most widely used in the Ukrainian education system, as shown in Figure 1.

Figure 1

Methods of Innovative Teaching that are Most Often Used in the Education System
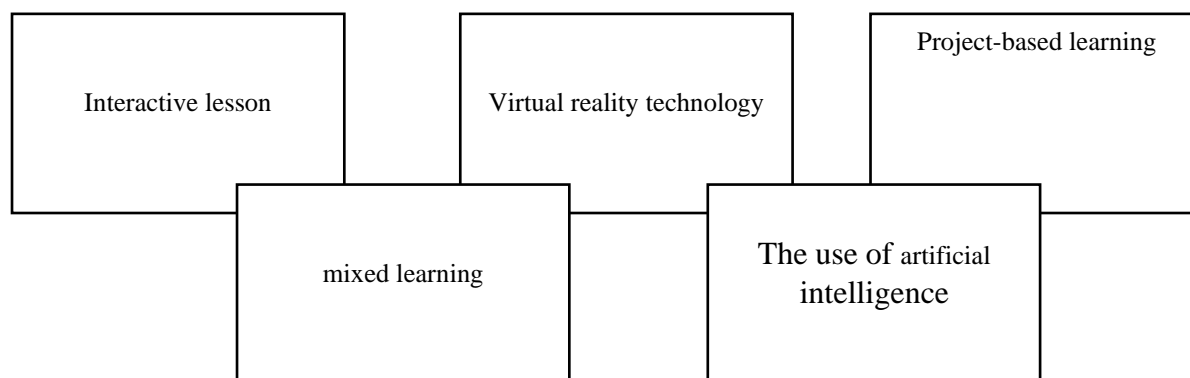
Source: Desiatov (2020)

These methods have been reproduced in higher education, when the teacher pays more attention to students and uses digital technologies to organize learning. In particular, conducting an interactive lesson with the use of multimedia devices contributes to a clear vision of a scientific problem (Ivanova et al., 2021). Virtual reality technology allows you to gain practical skills when using gadgets and augmented reality devices (Lai & Bower, 2019). The use of artificial intelligence allows students to find answers to problematic learning issues and see an alternative solution to a complex task (Turnbull et al., 2019). Blended learning involves a combination of face-to-face and distance learning, which is important in modern conditions (Castro, 2019). Project-based learning with the use of modern computer technologies allows students to create full-fledged projects using virtual technologies (Kehrwald & Parker, 2019).

In the current conditions of development of higher education institutions in Ukraine, innovative methods based on the use of virtual classrooms are widespread. This is realized with the help of software tools such as Zoom, Google Meet, Classroom. These digital technologies provide students with access to virtual classrooms, where teachers teach assignments, and students can submit completed assignments; you can check progress and see completed assignments; write comments and have constant communication with the teacher (Okolie et al., 2019). The ability to conduct video conferencing with these tools turns them from learning software into social platforms where students and teachers can communicate and share materials, photos, videos, and links (Mintii & Kovalenko, 2021).

In order to optimize the learning process, teachers also suggest that students use a random team generator in class. An example is the Random Group Maker program. Its essence is that the teacher creates a list of random commands in his or her own electronic office, for example, "Break", "Complete the assignment", "Check homework", "Join the discussion", "Automatic score". When working with students, the teacher can click on the generator wheel with the mouse and students will see on the multimedia board or projector which command will be displayed. This allows you to slightly break the standard structure of the lesson, so students are interested in completing the task (Quinn & Gray, 2020).

The use of innovative technologies in education has a positive impact on the access of various categories of the population to educational services, obtaining professional knowledge, improving the level of knowledge, developing the flexibility of a specialist, and creating conditions for professional growth of a teacher (Shen & Ho, 2020). However, given the peculiarities of the development of innovative teaching methods in higher education in Ukraine, the following strengths and weaknesses of the digitalization of higher education can be suggested, as shown in Figure 2.

Figure 2

Strengths and Weaknesses of the Digitalization of Higher Education
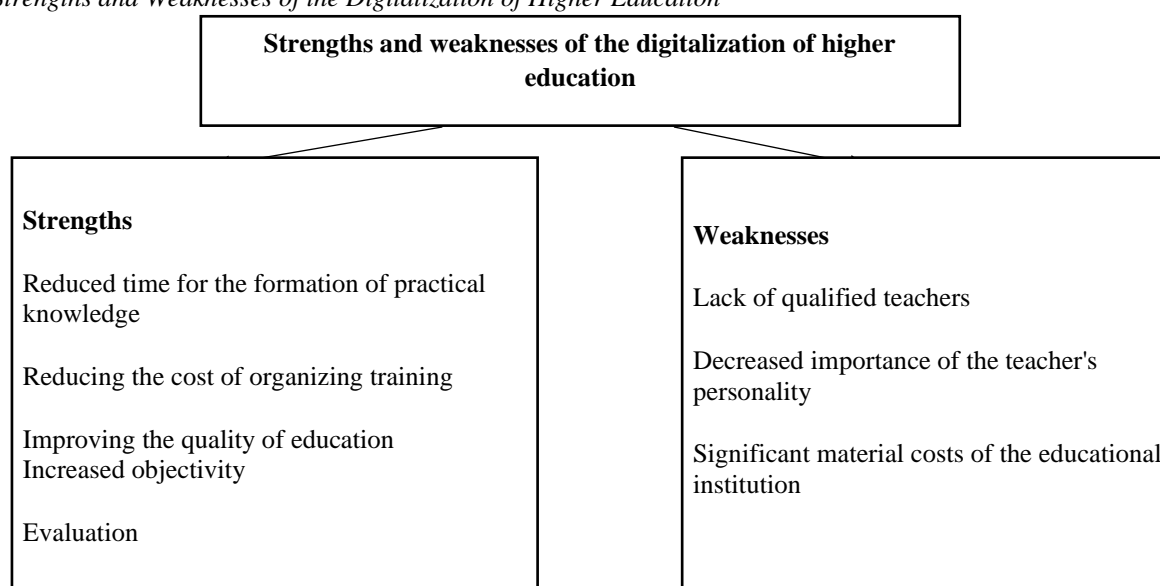
Source: Medvedovska (2017)

In general, it can be argued that the digitalization of higher education in Ukraine is slow. In particular, the reason is that institutions do not have sufficient material and technical resources

to form a single complex of online learning spaces. In addition, to increase the use of digital resources in the classroom, it is necessary to conduct training courses for teachers and form a teaching staff of people who know how to work with modern systems, which is also problematic. In addition, teachers may worry that students will be more interested in new technologies and pay less attention to the teacher's authority.

In order to identify the state of implementation of innovative methods in the educational process of higher education institutions of Ukraine, the author analyzed the official web resources of educational institutions and analyzed their curricula. For example, the official website of the Kyiv Aviation Institute states that distance learning at the university meets 30% of the required 100%, which corresponds to a sufficient level of distance learning provision; the level of software is 20%, i.e. low; the level of information provision is also low and amounts to 15%.

The National University of Life and Environmental Sciences declares on its official website that the issue of innovative teaching methods is coordinated by the Information and Communication Center, which is a subdivision of the university. This structural unit deals with the creation of electronic manuals for the educational process, the introduction of video communication equipment, and the maintenance of an institutional depository.

The analysis of the official website of the National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute" revealed that the university actively promotes the idea of distance learning. In particular, the organization of the educational process involves students performing independent work in the MOODLE platform.

In order to provide their own assessment of the effectiveness of innovative teaching methods in Ukrainian higher education institutions, students of the above universities were asked to complete a survey in the format of a questionnaire "Innovative teaching methods in my university". The results are presented in Table 1.

Table 1

Questionnaire "Innovative Teaching Methods at My University"

| Number of s/n	Question	Answer
1	What form of education prevails during classes at your university: traditional, distance, mixed?	
2	What innovative teaching methods are used in the classroom?	
3	Do you work with learning platforms?	
4	Are there any interactive classes?	
5	Do your teachers tell you about artificial intelligence in education?	
6	Are you taught to work with special programs for your professional activity?	
7	How would you rate the use of digital tools in teaching at your university: low, medium, high?	

The survey involved 20 students who sent their answers via social platforms. According to the results, 12 students answered that they were studying in a blended learning mode (60%), six students answered about the traditional mode (30%), and two students answered about distance learning (10%). Regarding innovative teaching methods, students answered that this includes

the use of electronic textbooks and watching thematic videos on the projector. Regarding learning platforms, all students said that they work with learning platforms. When asked about interactive classes, 10 students reported that such classes are rarely held (50%), five students found it difficult to decide (25%), and five students often hold such classes (25%).

To the question "Are you taught to work with special programs for your professional activity?", 11 students answered "Yes" (55%), and nine students answered "No" (45%). However, the respondents noted that working with such programs would be useful for their practical knowledge. As for the assessment of the use of digital tools in university education, the following results were obtained, as shown in Figure 3.

Figure 3

Assessment of the Use of Digital Tools in University Education by Respondents
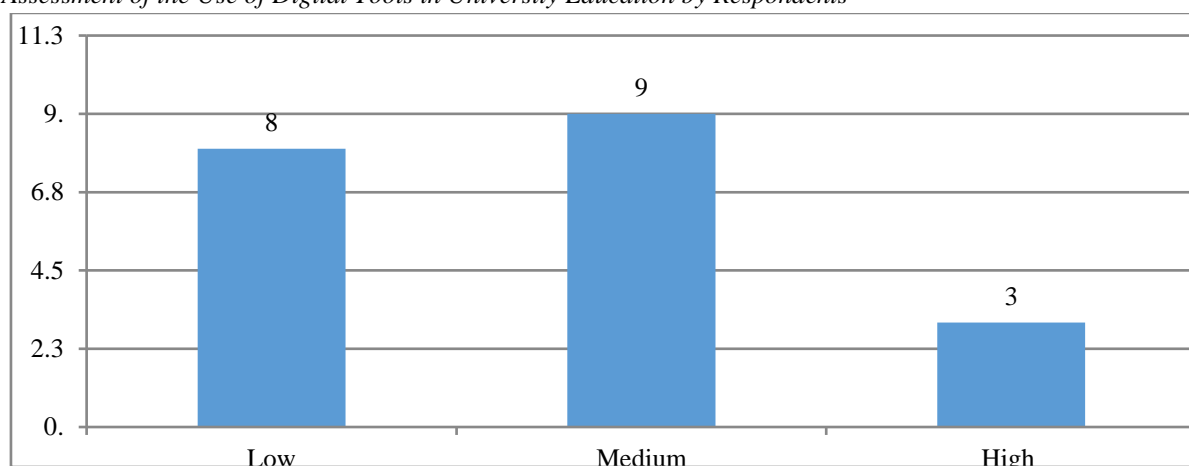
Therefore, it can be concluded that the evaluation of innovative methods in higher education indicates that the introduction of digital learning tools in Ukrainian universities is slow and has certain difficulties, which suggests the need to implement comprehensive digitalization programs for higher education institutions in Ukraine.

Discussion

The issue of evaluating the effectiveness of innovative teaching methods in higher education is quite complex and requires more detailed consideration. The practical study revealed problematic aspects of the implementation of digital tools in the educational process of domestic universities. Therefore, it is difficult to talk about the active implementation of information technology in higher education in Ukraine.

In particular, Tiutiunnyk (2021) argues that under current conditions in Ukraine, it will be difficult to introduce innovative teaching methods at a high level. The immediate problematic aspect here is the lack of qualified teachers who could work with modern educational systems and pass on their knowledge to students (Tiutiunnyk, 2021). Onishchenko et al. (2022) agree adding that domestic universities do not have the necessary technological base to implement high-level digital learning technologies. In particular, even in practical classes, where students are supposed to work with modern computers and information programs, they often work on outdated equipment (Onishchenko et al., 2022).

At the same time, Hlukhaniuk et al. (2021) is confident that innovative teaching methods are being implemented quite actively in Ukrainian higher education institutions. He emphasizes that classes often use the LMS learning platform, which allows you to create virtual laboratories, add completed tasks, and check completed tasks. Bradley (2021) also agrees with this, emphasizing the effectiveness of this platform and believes that it should be used by higher education institutions much more often during training. However, in general, researchers are convinced that modern higher education in Ukraine is trying to intensively introduce digital tools into teaching (Bradley, 2021).

Therefore, this issue is quite controversial, as it is difficult to assess the implementation of digital tools in the context of certain higher education institutions in Ukraine, so it is necessary to consider this issue more globally, exploring the issue of innovative learning in the regions of our country.

Conclusion

Based on the results of the study on evaluating the effectiveness of innovative teaching methods in higher education, the following conclusions can be drawn:

1. Innovative teaching methods are slowly being introduced into the Ukrainian higher education system. Currently, we can only talk about the partial introduction of digital resources in the teaching process, which is mainly due to the rapid introduction of virtual classrooms after the start of the full-scale invasion. This has resulted in the fact that interactive technologies are not integrated into the learning process and are used only to achieve certain learning objectives.

2. Higher education institutions in Ukraine declare the introduction of innovations in the organization of the educational process, which contradicts the statements of students. Accordingly, participants in the educational process do not see significant changes in the implementation of digital education, which indicates that higher education institutions are not making enough efforts to change the current situation.

3. Improvements in the implementation of innovative teaching methods can be achieved by organizing a comprehensive improvement of the material and technical base, professional development of teachers, focusing on the needs of students, investing in the development of computer systems and special programs at the bases of higher education institutions.

To summarize, we can say that foreign experience would be useful for our country. A change in the approach to digitalization of education is the basis for improving the quality of education and increasing the level of practical skills of students. In addition, the introduction of information learning systems can change the organization of the educational process, where the teacher spends most of the time explaining the material, when, with the help of a virtual space, the student can quickly master the necessary knowledge and share the experience with others.

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