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INNOVATIVE TEACHING TECHNOLOGIES AT UNIVERSITIES

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ABSTRACT
The proposed article introduces critical approaches to the process of introducing innovative teaching technologies at the university, taking into account the accumulated experience of teaching and modern information and communication technologies.
The technology of improving the educational process based on a modern approach to the teaching method based on practical cases is considered. A description is given of the procedure for implementing this learning scheme for students of a higher educational institution, taking into account already existing experience
The article also outlines the basic principles of the formation of a training case, as well as gives a description and considers vital aspects of the structure of a typical

training case. As for recommendations, the experience of introducing a similar technology for full-time students is described.
Keywords: Innovations, Teaching Technologies, Universities
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1. INTRODUCTION

The rapid development of society necessitates changes in even universal forms of learning. Therefore, in the modern practice of university education, it is necessary to combine traditional and innovative teaching technologies [1-4].

Currently, the teacher is not limited in the choice of teaching aids, and the imperative of the time requires making the training practice-oriented [5-8]. The expansion of pedagogical methods and techniques, as well as pedagogical innovations, significantly affect the nature of teaching. And accordingly, the assimilation of material by students.

Speaking about innovations, it should be understood that we are talking about a complex of interconnected processes that are the result of the conceptualization of new ideas aimed at solving the problem and then to the practical application of the new methodology. Pedagogical innovations in the educational process may include the content of educational material, technical means, and of course, pedagogical technologies.

From the point of view of the development of education, as one of the primary forms of activity of human society, it should be noted that from modernizing the educational process, the introduction of information and communication technologies seems to be a logical step in the development of existing educational technologies at universities [9-11].

2. METHODOLOGY

Current trends in the development of educational systems necessitate the widespread introduction of information and communication technologies in education. This is due to the presence of the following factors:

- The use and implementation of information and communication technologies in education are fundamentally changing the technology for the transfer of knowledge and acquired experience of humankind, from generation to generation, and from one learner to another.
- The use of modern information and communication technologies can improve the level and quality of training and education. This helps the student to better and more intensively adapt to environmental changes and changing socio-economic conditions.
- The use of information and communication technologies determines the possibility of obtaining the necessary amount of knowledge, taking into account the formation and development of post-industrial society.

The intensive implementation of information and communication technologies in the educational process is becoming one of the determining directions for creating such an education system that will meet the requirements of the modern information society. This will be the basis of the reform process of the existing education system that meets the needs of the contemporary information society.

2.1. Innovative Technologies as the Basis of the Pedagogical Process at the University

The increasing pace of scientific and technological development of society predetermines the requirements for continuous improvement of the higher education system. Growing exponentially, the volume of knowledge received by humankind requires the education system to use the most effective and advanced knowledge transfer technologies. In this regard, scientific research and the introduction of innovations at different stages of the educational process, turn into an obvious need.

Now universities are faced with the task not only to give students modern knowledge, skills, but also to develop their willingness and ability to continually improve their

knowledge, teach them to study all their lives, and develop their competencies, which is not always possible using only traditional technologies.

Thus, universities should pay special attention to creating favourable conditions for the upbringing of a comprehensively developed personality, using innovative teaching technologies, to maximize the disclosure and development of the student's abilities, and form the basis for the development of independent thinking.

Approaching the question of what is innovative educational technology, it should be noted that, first of all, a distinction should be made between technology and teaching methods. It would seem that these concepts are quite identical, in essence, both the methodology and technology provide the required results in the learning process of students. Still, the critical difference between the technology is that it is guaranteed to provide the desired learning outcome.

Also, the concept of teaching methods reflects the procedure for using a set of teaching methods and techniques, as a rule, regardless of the person who implements them. The teaching technology, on the contrary, involves the addition of the teacher's personality in all its diverse manifestations to the teaching process, that is, the teaching technology is clearly personalized

It can be concluded that theoretically any innovative technique is trained, can be brought to the level of innovative technology, by ensuring its consistent optimization based on the presence of feedback and correction of the main components

The general principles of teaching techniques can be clearly expressed in the form of the circuit shown in Fig. 1.

Figure 1 Key principles and rules of learning technologies

These include:

1. The principle of pedagogical expediency implies that not a single action of a teacher should stand apart from the set goals.
2. The interconnection and interdependence of teaching and learning as two inextricable sides of the learning process, since teaching is the organization of pedagogically appropriate independent activities of students.
3. Limiting the concretization of learning objectives in the content, methods, teaching aids,

and in the methods of student activity organized by the teacher.
4. A necessary element of teaching technology is thematic planning, which includes a brief description of the results and the construction of the entire chain of individual lessons connected by one logic.
5. Organization of control at each stage of the educational activity of students.
6. Stimulation of students' creative activity, orientation not only on knowledge but also on skills.
7. A variety of forms and teaching methods, preventing universalization of a single tool or form.
It should be clearly stated that not every "new" technology can be considered innovative; moreover, not every technique can develop to learning technology. Until an innovative technology has been created, the individual skill of the teacher prevails, as it improves, it transforms into collective creativity, the concentrated expression of which will be innovative technology.
At the same time, the process of creating innovative technology must be conducted in compliance with the fundamental principles presented in the form of Fig. 2.
Figure 2 Principles of developing innovative technologies in education
1) the principle of the integrity of the technology representing the didactic system;
2) the principle of reproducibility of technique in a specific educational environment to achieve the goals;

3) the principle of non-linearity of pedagogical structures and the priority of factors affecting the mechanisms of self-realization of relevant pedagogical systems;
4) the principle of adapting the learning process to the personality of the student and his cognitive abilities;
5) the principle of potential redundancy of educational information, creating optimal conditions for the formation of generalized knowledge.
An effective educational, innovative technology, in current economic conditions, taking into account all environmental factors, will be considered as such with the systematic implementation of three interrelated components:
1. Competency-based approach, providing the development of skills of students, transmitted using modern means of communication
2. Modern interactive teaching methods – effective methods for the formation of competencies, the essence of which boils down to the interaction of students in the educational process.
3. A modern learning infrastructure based on informational, technological, organizational and communication features of providing information to a student.
Thus, innovative technologies combine interactive forms of learning and information and

communication technologies. Information and communication technologies are an innovative driving force because they provide the opportunity to combine digital technologies and resources to expand horizons and improve the quality of education, teaching and training than all previous educational technologies from the blackboard to television.

2.2. Use of Case Study Technology in the Educational Process of the University

Information and communication technologies as the basis of innovative modernization of the university's educational process can be successfully supplemented by the use of promising case study technology [8; 12-14].

This system is a learning technology that uses a description of real economic, political, legal, pedagogical, social situations. The case is understood as a descriptive representation of any real or practical examples modelled as real. The training system built on this technology is based on the analysis, solution and discussion of situations, both simulated and real. This technology has excellent potential for development and implementation; it contributes to the development of analytical and critical thinking and creativity.

At its core, a case is a type of group research analytical activity, design technology that generates the effect of synergy. For example, the business game and the case method are related technologies, which creates opportunities for their combination in the educational process of the university.

A feature of this technology is the close connection of theory with practice; the case method effectively develops the ability of students to make informed decisions in a limited time environment, which is presented in the form of a diagram in Fig. 3.

In itself, a case acts as a tool to apply theoretical knowledge to solving practical problems. In this case, the teacher in the learning process should clearly separate for students cases based on real factual material, the so-called "field cases", and based on theoretically modelled facts - "cabinet cases".

Figure 3 The list of abilities and competencies developed through case studies

The essence of case technology lies in the fact that students are provided with a set of training materials (case), and it is proposed, based on the results of studying and analyzing the material, to comprehend the content of the problem they contain, as a rule, which does not have an unambiguous solution, and offer their vision of the solution using existing professional knowledge and skills.

The primary purpose of studying cases in the learning process at the university is, first of all, to provide students with a scenario that is as close as possible to the real conditions that they may encounter in the process of their professional activity after graduation. The ultimate goal is to promote the formation of integrated knowledge, skills and abilities, as well as combining theory with practice. At the same time, the role load of the case method in different subject areas is different, in any case, the cases help students gain their first experience of working in a team and develop the ability to perform a specific set of functions and professional roles.

The use of such innovative technology leads to an increase in the intensity of the educational process at the university and provides a variety of forms of interaction between its participants.

The educational process using the technology of the case study method involves the gradual passage of three main stages:

1) obtaining data, including:

a. understanding and use of data;

b. analysis;

c. application of professional skills;
d. the weighting of alternative methods in the decision-making process on a given problem.

2) data processing and work with them;
3) presentation of work results
To organize sufficient work with the case is recommended that the case materials include a brief description of the problem situation for the student, containing:
1) the main area and activities of the company in question;
2) types of organizations where the skills acquired in the process of considering the situation can be applied;
3) categories of tasks that students will solve;
4) requirements for personal qualities, skills and methods of specialist activity in this particular professional field;
5) a list of job responsibilities;
6) knowledge requirements.
All this will help students to take a more balanced approach to the analysis of the information received and teach them to systematize and catalogue the information collected.

The structure of a typical case for the educational process at the university is presented in Fig. 4.

Figure 4 The structure of the required elements of the case

Mandatory elements of the case are:

1) case name (code);
2) a brief description of the main idea of the case (review of the case);
3) the purpose of the case (what he teaches);

4) the place of the case in the curriculum (for self-planning of training);
5) the wording of the problem and the plan for studying the materials of the case (it is included only for a low level of difficulty working with the case);
6) phased tasks to perform;
7) detailed issues for discussion;
8) requirements for processing the results of work with the case;
9) description of the situation;
10) reference materials and links to additional information resources (for self-study).

Also, the case may include additional, non-textual material in the form of visual applications (diagrams, graphs, tables, photographs), audio and video materials, slide discussion support, computer simulations.

3. EXPERIMENT AND ANALYSIS OF THE RESULTS

As a basis for the experiment on the application of the case method technology, four study groups of students were selected in the amount of 57 students, the second and third courses. Since the methodology of working with cases involves greater independence of students, as well as the active use of acquired knowledge in practice, it was considered inappropriate to attract first-year students to the experiment.

Typically, the work on the case method technology was structured as follows. A group of students is invited to consider any specific problematic situation related to their future professional activities in the securities market. Students are also offered to study a description of the solution, which includes the following information: why this decision was made; how this decision was put into practice and what were the results (consequences).

Schedule of the study group with a case during the training session:

1. Introduction to the case. The group gets acquainted with the content of the case; in some cases, if the teacher considered it necessary, the students got acquainted with the problem posed in the case on the eve of the lesson, with the aim of more thorough preparation. The teacher asks several questions regarding the content: "What is the main problem of this situation?", "Who is the main character?" etc. Members of the group can also ask questions regarding the content. In the process of discussing the case, the teacher himself usually tries to refrain from answering the questions posed. Instead, he asks the audience questions and gives the floor to the students to answer the questions themselves.
2. An individual analysis of the situation. Each participant presents his decision in the form of an oral message within the established rules.
3. Group work. Participants are united in groups; the rules of preparation and performance are established. Participants specify the list of problems, their hierarchy, make a list of the advantages and disadvantages of each solution, choose the optimal solution, evaluate alternative solutions, prepare for the presentation.
4. Presentation of decisions. The ability to publicly present an intellectual product and not save under the pressure of criticism is an essential integral quality of a modern specialist. The teacher motivates group members to complement their speaker. All other students have the opportunity to ask speakers questions.
5. General discussion. As a rule, four issues are discussed at this stage:

- Why does the situation look like a problem, a dilemma?
- Who created this situation?
- What opportunities were used and which were not?

- What had to be done?

At this stage, the teacher should give everyone the opportunity to speak out and, in the end, vote "Whose decision was the most successful?"
6. Summarizing. The final presentation of the teacher, in which he talks about how, in reality, the problem that the participants discussed was solved. For cabinet cases, it is essential to justify the teacher's version. It is important to emphasize that the case may have other solutions, and once again highlight the most successful solutions.
The schedule for the distribution of study time for each stage is shown in Fig. 5. At the same time, additional instructions were given to the teachers, which is quite acceptable to allocate extra time in stages 2 "Individual work" and 3 "Group work", but not more than the specified value. At the same time, the allocation of additional time in stages 1 "Introduction to the case" and 6 "Summing up the results" is undesirable. These clarifications were made to prevent a situation where a teacher from working on the methodology of cases could inadvertently switch to a lecture or seminar form of training.
Figure 5 Distribution of study time when students work with a case
It was also recommended that in the process of discussing the case, the teachers themselves refrain from answering the questions posed by them. Instead, the teacher's task was to form additional leading questions for students to stimulate them to become more independent.
The results of the proposed technology were monitored by comparing student performance in comparison with control groups, as well as by conducting questionnaires at the end of the experiment, and summary results are presented in Fig. 6.
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0% 10% 20% 30% 40% 50% 60% 70%
Case Introduction
Individual situation analysis
Group work
Presentation of Solutions
General discussion
Summarizing
1 2 3 4 5 6
Standard time Additional time Excessive time
Innovative Teaching Technologies at Universities
http://www.iaeme.com/IJARET/index.asp 262 editor@iaeme.com
Figure 6 Survey data of students and teachers on satisfaction with the completed training course

Analyzing the data shows that both teachers and students are more than satisfied with the proposed teaching methodology. The process of preparing cases based on personal experience was especially interesting for practical teachers, and students showed extraordinary enthusiasm when dealing with real concrete problems that their teachers had in their professional activities. It should be noted that cases based on modelling based on hypothetical situations also aroused keen interest, primarily the opportunity to predict and test in practice potential solutions to possible problems, without prejudice to professional activity, and without risk of loss of financial resources.

4. CONCLUSIONS

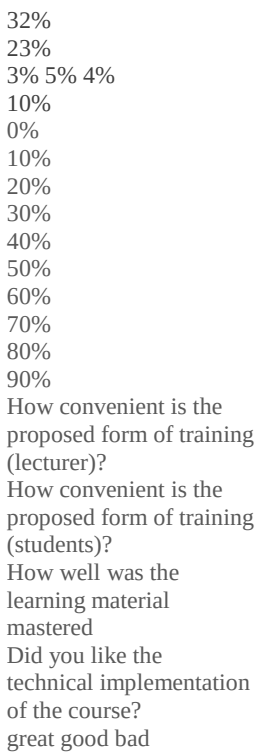
The development of the modern system of higher education takes place in the conditions of informatization of society and is characterized by dynamism, the use of diverse educational technologies, innovative methods and organizational forms of training. The need to adapt to the dynamically changing conditions of the economic environment and the requirements of society makes the educational process ineffective, based only on traditional approaches to the learning process. The introduction of innovative educational technologies in universities will help them to comply with the trends of the time. Learning technology based on the method of training cases, as experience shows, is an effective way to revitalize and modernize the learning process. Despite the potential difficulties, both for students (large amounts of information, the need to develop and improve communication skills), and for teachers (challenges in finding adequate and clear cases, insufficient practical experience, novelty and lack of processing of the technology itself), this technology has good potential, with modest costs (material, labour and financial) for its development and implementation in the educational process of the university.

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