DOI: https://doi.org/10.32839/2304-5809/2022-1-101-33
UDC 37.012+378

Shenderuk Olena, Bykonya Oksana
Academy of the State Penitentiary Service

INNOVATIVE TECHNOLOGIES AND INTERACTIVE LEARNING TOOLS AS A SOURCE OF NEW OPPORTUNITIES

Summary. In this paper an attempt to present innovative and interactive learning tools has been made. The concepts such as "innovation", "innovative technology", "interactive learning tools" have been analyzed and defined. Thus, innovation is a novelty, and innovative pedagogical technology is the introduction into practice of original, innovative methods, techniques of pedagogical actions and tools. Under interactive learning tools we consider interactive whiteboards, a multimedia projector. It is spoken in detail about their advantages in the educational process. Much attention is given to novelty and innovative pedagogical technologies, innovative methods, techniques of pedagogical actions and tools. It is reported that forms of innovation can be divided into structural, educational, innovations in scientific and international activities, innovations in the system of professional development of teaching staff and in information support, innovations in employment of graduates. The article is of great help to interactive learning as a special form of organization of cognitive activity where comfortable learning conditions are created and each student feels his success and intellectual ability.

Keywords: innovation, interactive techniques, innovative technology, innovative pedagogical technology, interactive teaching tools.

Шендерук О.Б., Биконя О.П.
Академія Державної пенітенціарної служби

ІННОВАЦІЙНІ ТЕХНОЛОГІЇ ТА ІНТЕРАКТИВНІ НАВЧАЛЬНІ ЗАСОБИ ЯК ДЖЕРЕЛО НОВИХ МОЖЛИВОСТЕЙ

Анотація. В статті розглядаються поняття «інновація», «інноваційні технологіїі» та «інтерактивні засоби навчання» та інші, що з ними пов'язані. Питання інновацій та інтерактивних методик навчання давно є на часі та їхні різні аспекти були та залишаються об'єктом спеціального вивчення вчених. Сьогодні традиційні методи навчання втратили силу. Натомість прийшло інноваційне навчання та різні інтерактивні методики за допомогою яких студенти отримують soft skills, які є такими необхідними та важливими. Отже, актуальність статті є очевидною. Метою даного доробку є вивчення та аналіз понять «інновація», «інноваційна технологія», «інтерактивні засоби навчання» та інших понять, які з ними пов'язані задля кращого їхнього розуміння та застосування на практиці. В ході аналізу понять нами було їх визначено як такі, що впливають на соціальні та управлінські здібності, такі як адаптація, вміння працювати в команді, критичне мислення, емоційний інтелект, креативність та ряд інших. Використання інноваційних технологій та інтерактивних методик допомагає адаптувати студентів до сучасного життя, оволодіти знаннями, творчо мислити та застосовувати здобуту інформацію у власному житті. Під педагогічною інновацію ми розуміємо рішення різних педагогічних проблем своїм неповторним, інтерактивним шляхом, результатом якого є вдосконалення педагогічної майстерності викладачів. До основних інноваційних напрямків педагогічних технологій нами віднесено психолого-педагогічний, спрямований на успішність взаєморозуміння між викладачем і студентами; зміну форми подачі навчального матеріалу; зростання ролі наочності навчального матеріалу; розвиток творчого потенціалу. Інтерактивне навчання визначене як спеціальна форма організації пізнавальної діяльності за якої створюються комфортні умови навчання, коли кожен учень відчуває свою успішність та інтелектуальну спроможність. Засоби навчання такі як комп'ютер; мультимедійний проектор; дошка також мають свої переваги під час навчання, але лише за умови їх вдалого та влучного використання викладачем.

Ключові слова: інновація, інтерактивні техніки, інноваційна технологія, інноваційна педагогічна технологія, інтерактивні засоби навчання.

Problem statement. The problem of innovation and interactive teaching tools has been around for a long time and their various aspects have been and remain the subject of special study by scientists. Today, traditional teaching methods have lost their force. Instead, there is innovative learning and various interactive techniques through which students gain the soft skills that are so necessary and important. Soft skills are a set of important professional competencies that are not related to a specific subject and that do not depend on the specifics of the work. Nowadays, it is important to master soft skills that affect social and managerial skills, such as adaptation, teamwork, critical thinking, emotional intelligence, creativity and others. Importantly, the use of innovative technologies and interactive techniques will help to adapt students to modern life, acquire knowledge, think creatively and apply information in their own lives. This issue can only be solved if there is an understanding of the nature of innovation and interactive teaching tools.

The purpose of this article is to study and analyze the concepts such as "innovation", "innovative technology", "interactive learning tools" and other concepts that are closely related to them for better understanding and application in practice.

Analysis of recent research and publications. The term "innovation" comes from the late Latin "innovatio" that is renewal, novelty, change and means innovation, ie purposeful changes that make the environment of new stable elements (in-

novations), causing the transition of the system from one state to another.

According to V. Kvasha: "This is the creation of new models of activity that go beyond the norm, unregulated professional activity to a fundamentally new level of quality. Any innovation goes beyond normalized activities and is always aimed at a breakthrough" [1, p. 4]. Any educational innovation begins with a creative person (carrier of innovation), who has a certain pedagogical idea (the core of innovation) and conducts an experiment (source of innovation). In the performance of the teacher, his educational innovation is an art, but how effective will be the introduction of this innovation in other educational institutions largely depends on the innovative educational technology.

A large encyclopedic dictionary defines the concept of "innovation" as a novelty [2].

There is an opinion that "Innovative pedagogical technology is a purposeful, systematic and consistent introduction into practice of original, innovative methods, techniques of pedagogical actions and tools that cover the holistic educational process from defining its purpose to the expected results" [3, p. 338].

According to L. Danylenko, "Innovative educational technology is a qualitatively new set of forms, methods and tools of teaching, education and management, which brings significant changes to the outcome of the educational process and is considered as a multicomponent model which includes educational, educational and administrative partial of innovative technologies" [4, p. 20].

To educational innovative technologies the scientist L. Danylenko carries such set of operational actions of a teacher with a student as a result of which motivation of pupils to educational process essentially improves. Among these technologies a significant place is occupied by technologies such as:

– personality-oriented learning;
– integrative;
– informational;
– remote;
– credit-modular system of educational process, etc.

There are many innovative concepts. Thus, the researcher L. Stefan refers to them as follows:

– technopark;
– innovation and technology center;
– corporate training;
– working out a "portfolio of orders";
– creation of the Institute for targeted training of the specialists;
– employment of graduates through the organization of Job Fairs, Career Days, etc.

The following forms of innovation are summarized by L. Stefan:

1. Structural innovations: research university, innovation park, technopark, business incubator, cluster, research center, Institute of advanced training.

2. Educational innovations: system of innovative training of students, joint educational programs with domestic educational institutions, special courses on the basis of profile research Institutes, monitoring of the market of educational services and others.

3. Innovations in scientific activity: opening and development of scientific schools with innovative subjects, system of stimulation of preparation and defense of dissertations, institute of pre-doctoral studies, system of grant support of scientists, system of allowances for scientific publications.

4. Innovations in international activities: participation in international educational projects, projects with the invitation of leading teachers of foreign educational institutions for educational activities.

5. Innovations in the system of professional development of teaching staff: courses of information and communication technologies, the system of language competence development.

6. Innovations in information support: electronic university, electronic library, electronic educational and methodical complex, system of unified telecommunication environment.

7. Innovations in the employment of graduates: career center, electronic database of graduates, graduates association, job fairs, career days [5].

We consider pedagogical innovation as a solution to various pedagogical problems in its own unique, interactive way, the result of which is the improvement of pedagogical skills of teachers.

The main innovative directions of pedagogical technologies:

– psychological and pedagogical, aimed at the success of mutual understanding between a teacher and the students;
– change of the form of submission of educational material;
– increasing the role of clarity of educational material;
– development of creative potential.

Using innovative technologies in the management of educational institutions, there is the emergence of new educational systems (credit-module, degree, development, profile); growth of the innovative component in the content, forms and methods of teaching; there are pedagogical innovations that have qualitatively changed teaching methods and communication methods; the growing role of computer telecommunications technology in the management of the educational process. Modern computer telecommunications are able to provide knowledge transfer and access to a variety of educational information more efficiently than traditional teaching aids. It has been experimentally proven that the quality and structure of training courses and the quality of teaching in distance learning are much better than in traditional forms of education.

Teaching aids. An analysis of the literature has revealed that there are many different approaches to the definition of "learning tools". Thus, A. Khutorsky, means of learning considers material and ideal objects that are used in the educational process as carriers of information and tools for teachers and students [6, p. 491].

According to S. Batyshev, teaching aids are material objects and objects of natural origin, as well as man-made, which are used in the educational and production process as carriers of educational information and tools for teachers and students to achieve the goals of teaching, education and development [7, p. 319]. Teaching aids are an important component of the learning process, which is an interrelated activity of a teacher and the students [7, p. 52].

I. Radchenko considers teaching aids as pedagogical and ideal. Pedagogical tools should be understood as a set of material and ideal objects that are used in the educational process for the formation of knowledge, skills and abilities, achieving the goals of training, development and education of future professionals. To the ideal means of learning, she refers organizing and controlling activities of the teacher; the level of his qualification and internal culture; methods and forms of organization of educational activities; system of teaching subjects of the professional cycle in the relevant working profession [8, p. 19].

V. Kraevsky considers that activity of a teacher and students is a means of studying [9], and M. Skatkin refers teaching to the means of learning [10].

Teaching aids are objects and processes that serve as a source of educational information and a tool for learning the content of educational material, ensure the development of cognitive activity of students, promote their information literacy, are used depending on the stage of training and types of professional skills.

But, in our opinion, the word of a teacher is the most important, the most important and the most influential means of learning.

In today's conditions, interactive learning tools are becoming very relevant, which are a means of organizing active interaction between a student and a teacher in the learning process in order to achieve certain didactic results. Among the interactive learning tools, an honorable place is occupied by interactive whiteboards, which integrate 4 components: 1) computer; 2) multimedia projector; 3) software; 4) the board.

Advantages of using interactive whiteboards:

– saving time in the classroom due to the partial refusal to draw diagrams, charts and notes. Each student can receive a file with a record of it after the lesson, which can be viewed on a computer in any mode. Not only the illustrations and notes offered by the teacher are available, but also the sequence of actions on a board is correctly reproduced.

– increase the efficiency of teaching material.

The combination of an interactive whiteboard with a multimedia projector allows you to solve a number of problems to improve the quality of the educational process. The multimedia projector displays a pre-selected background slide show on the surface of the interactive whiteboard. Acoustic systems create the desired background sound in the classroom, and the teacher has to take care of the content of the material – to write or draw on an interactive whiteboard (on any background). In terms of the strength and depth of the impact on the audience, a well-constructed lesson using a computer and an interactive whiteboard and a multi-projector can be compared to a movie and a theater. However, the teacher will need directing knowledge and skills for this:

– promotes the organization during group work (or group games) of skills that are essential for successful activities in many areas. This requires flexible software so that students can write and draw with their finger without thinking about how to share electronic markers;

– assists in the organization of feedback and provides non-linear presentation of educational material. Working with different audiences allows not only to learn in an interactive mode (departure from the linearity of the material with feedback), but also the immersiveness (the effect of the presence of different audiences) of the lesson. Use, for example, a multimedia presentation that can create a problem situation and maintain a dialogue mode. Learning new material allows the teacher to maintain a heuristic conversation and its high pace;

– allows you to monitor the work of students immediately and consolidate educational material, conducting surveys and tests;

– increases students' interest to learning. It should be noted that teachers who use an interactive whiteboard in the classroom and have a method of its application, note that students who previously did not show much interest in learning, are now working with interest. This incentive is important for both students and teachers. Low performance is often explained by inattention, the reason for which is the students' lack of interest in traditional classes, which occurs when using only static projection. Using an interactive whiteboard, you can draw students' attention to the lesson, conduct it more freely, without being distracted by setting up a computer, support student communication [11].

Thus, the use of interactive whiteboards promises considerable benefits, but requires significant changes in methodological approaches to teaching. However, even teachers with experience who are afraid of computer technology, interactive whiteboards allow you to conduct classes with the usual methods (marker on the board), receiving all records electronically.

However, in high-quality hardware learning, interactivity is important but not crucial. A well-developed methodology is required for productive introduction of interactive whiteboards in the educational process. It should be supported by methodological materials, quality software, teachers who have the appropriate techniques capable of conducting classes using them. Most of the problems that teachers face in creating an electronic version of the study material are due to the lack of sufficient skills in designing information space and user interface to ensure the creation of effective structures that meet the new possibilities of presenting information. The interactive whiteboard software has limited ability to introduce formulas, graphs, and in the process of working with computer graphics systems, all this can be compensated and give the interactive whiteboards new opportunities. These limitations can be largely eliminated by using modern as well as interactive computer tools in conjunction with the interactive whiteboard.

Modern teaching methods require appropriate means of their implementation, which is why modern interactive teaching aids are a mandatory component of the learning environment. Using them in the learning process can significantly increase the level of interaction between teacher and student. However, the use of modern teaching aids only when a teacher knows these features and has the skills to manage this tool can be pedagogically proved and reasonable, didactically justified. Thus, in the modern information society, the main performer in the classroom is a teacher who has modern active techniques, and all means of information and communication technology are only help in his work.

Conclusions. Thus, the analysis of the concept of "innovation" allows us to conclude that this is a novelty, and innovative pedagogical technology is the introduction into practice of original, innovative methods, techniques of pedagogical actions and tools. Among the technologies, a significant place, according to researchers, is occupied by personality-oriented learning; integrative; information; remote and modular development. According to the forms of innovation they can be divided into structural, educational, innovations in scientific and international activities, innovations in the system of professional development of teaching staff and in information support, innovations in employment of graduates. Our work has led us to conclude that interactive learning is a special form of organization of cognitive activity in which comfortable learning conditions are created, when each student feels his success and intellectual ability. This paper has investigated that teaching aids such as computers; multimedia projector; boards have their advantages during training, but only if they are used successfully and accurately by the teacher.

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