MODERN APPROACHES AND METHODS OF INTRODUCTION OF INNOVATIVE TECHNOLOGIES IN EDUCATION AND SCIENTIFIC ACTIVITY

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Abstract

Experience of innovation activity of Ukrainian higher educational establishments confirms their ability to adapt to market requirements and to produce innovative products that are in demand using the results of this production to improve their educational and scientific work. The paper considers modern approaches and methods of introducing innovative technologies in education and research.

Keywords: higher education, information and communication technologies, educational process.

In the modern sense, informational educational technology is a pedagogical technology that uses special methods, software and hardware (cinema, video, audio, computers, telecommunication networks) to work with information. In general, the main information technologies used in the teaching process can be divided into three categories:

- Interactive (audiovisual media);
- computer training (including multimedia);
- means of telecommunication (videoconferences, forums, etc.)

The use of information and communication technologies (ICTs) is not limited to simply replacing "paper" media carriers with electronic ones. Information and communication technologies make it possible to combine the processes of studying, consolidating and controlling the learning material, which, for traditional teaching, is often discontinued. Information technologies make it possible to more individualize the learning process, reducing the frontal types of work and increasing the proportion of individual-group forms and teaching methods. Also, information technologies help increase motivation for learning, develop creative thinking, save time; Interactivity and multimedia visibility helps to better represent and, accordingly, better assimilation of information.

At the same time, information and communication technologies do not supplant traditional methods and techniques, they allow to bring the teaching methodology closer to the requirements of the present. To this end, the use of new information educational technologies in the educational sphere is being expanded, based on the modern computer base, new interactive methods: computer training programs, technical means of training on the basis of audio-video equipment, remote training facilities, teleconferences, etc.

The actuality of informational educational technologies is due to the fact that they improve the education system and make a more effective learning process. Today, the most widely distributed computer training programs, in particular, computer tutorials, diagnostic and test systems, laboratory complexes, expert systems, databases, consulting and information systems, applications that provide information processing.

Meanwhile, the world's leading trends in student audiotyping through the use of ICTs are now emerging in laboratories and being formed at leading universities around the world. On this basis, two groups of trends can be identified: current and perspective ones are formed, that is, today only emerging tendencies of the future.

The main contemporary world tendencies of intensifying student's classroom work using ICT:

- **Expand the use of blended learning through comprehensive** (both outside and classroom) use of social networks and web services. For example, university students at Berkley, Stanford, and MIT have the opportunity to engage in classroom classes through web connections (webinars) without being physically present in the audience or to communicate through videoconferencing using the Google+ hangout. Almost all leading universities of the world actively use Facebook and Twitter to conduct productive discussions during the classroom, improving the level of interaction within the student community. This is especially true when conducting classes in classrooms with a large number of students, where there is no opportunity to listen to each opinion during interactive classes. Due to the use of the capabilities of these networks, each student has the ability to participate in solving the issues by filing explanations and setting questions through Facebook and Twitter, which is displayed on the screen, therefore, this information becomes public, reflects the student's activity and promotes creative search.
- **Activating Backchannel** - Interactive communication during classroom sessions with smartphones and laptops. Activates the process of interaction in the audience during seminars, lectures, presentations. With the development of social media, in particular Twitter and blogs, backchannel provides documentation for events such as conference sessions, so that students have the opportunity not only to take

practical part but also to continue to study after the end of classroom work.

> **Use of mobile communication**. iPad and Alt-Tablets are actively used not only in remote, but also in classroom work. Tabletters during classroom work are used to search the Internet for the necessary information and for collaboration, and through special applications and web services, mobile devices are used to conduct surveys (that is, if necessary they are used as "clickers").

The iBooks Author created by Apple is a free, affordable tool that quickly creates interactive training content, so both teachers and students have the opportunity to create and use interactive training content on their own, in and out of the classroom.

IWork Special Apps for iPad: Pages, Keynote and Numbersi, Movie and GarageBand allow you to create professional documents, presentation tables, record audio and video. Using duplicate video in classroom work allows you to use educational apps for iPad, movies, videos, and more. The new iTunes U application allows students to work with tasks and access the world's largest (over 500,000 sources) online catalog of free lectures, video materials, textbooks, and more. Hundreds of universities and other educational institutions publish their materials at iTunes U. Among them are the London School of Economics, Cambridge, Oxford, and other organizations, such as the New York Public Library.

> **Comprehensive use of interactive learning tools**. The hardware complex required to provide interactive training typically consists of a computer, an interactive whiteboard, a multimedia projector and communication devices (Webcam, data transfer system, adapter, etc.). The complex may also include a tactile data entry device (interactive wireless tablet, interactive liquid crystal display (interactive graphic panel), combining the functions of the monitor and the digital tablet, the system of interactive polling - panels, wireless microphone systems) and the sound system escort.

Interactive whiteboards are used, as a rule, to display visual and interactive information, to collaborate collaboratively and display results, with interactive wireless tablets, students can answer questions from a teacher, ask questions, participate in the discussion process. Thus, an interactive dialogue arises between the teacher and the students, which greatly increases the level of perception and understanding of the materials of the class. If a student works on a board, the teacher can move freely in the audience and make adjustments using a wireless tablet.

For large audiences, as a rule, use an interactive liquid crystal display that combines the functions of the monitor and the digital tablet. For control of knowledge using wireless panels. During the class, the teacher asks questions, and students respond to them with a simple click on the buttons on the remote control. Survey results are stored and displayed in real time. At the end of the class, the survey results can be exported to MS Excel or another software product and analyzed.

The use of wireless microphone systems allows students to hear the teacher, which helps to concentrate on the lesson, improves the efficiency of the learning process.

All the components that are part of the hardware complex can work as a whole and independently of each other.

Almost all leading world-class universities are actively using the complex of interactive learning tools. Using them in the learning process can significantly increase the level of interaction between the teacher and the student. However, it is pedagogically advisable, didactically justified, the use of modern learning means only when the teacher knows the features of the means of education, has the skills to manage this tool. For example, the University of Michigan has a Center for Research in Education and Teaching (CRLT), which does not only research, but also provides assistance and organizes teacher training.

The Vanderbilt University Center provides teachers with recommendations on the use of ICTs based on research on the effectiveness of their impact on the student audience. Provides assistance to their teachers and the Standsforce University Teaching and Training Center.

Gamification: the use of serious games, simulations and virtual worlds. According to developers, the main reason for the popularity of business simulations is that they can teach those things that can not be mastered through lectures, case studies, or even visits to real companies. In games, students plunge into ambiguous and (or) contradictory situations that make them think strategically, make important decisions, and immediately see the consequences of their own actions, and, consequently, learn from their own mistakes. Simulations and games are used in various educational institutions in a certain thematic direction: political, economic, environmental, etc. For example, medical games (MedGames) are used to train doctors, nurses. They are needed for consolidation in the theory learned in practice. Instead of real patients with flesh and blood, they are trained on computer models that are as close as possible to reality.

Among Educational Games, the most frequently used educational games in the world's leading universities are: (Education Games): IBM INNOV8 2 is an interactive three-dimensional educational game whose purpose is to show the interrelationships and opportunities for effective interaction between teams of IT specialists and business leaders in organization. The Nnov8 game is designed to complement training courses such as Business Process Management, Corporate Strategy, Operations Management, and Information Technology Management.

These games are available through the IBM Academic Initiative, a program that offers colleges and universities a wide range of educational tools and techniques for applying to IT disciplines. Educational institutions participating in this program get free access to IBM software, hardware (discounted), training materials, training courses and training techniques. About 3000 universities of the world have already joined IBM Academic Initiative.

Virtual Worlds provide an environment that is used for various purposes, including creating games,

conducting virtual lectures and collaborating. The largest virtual worlds are Second Life, Active Worlds, Kaneva, Smallworlds, Onverse, BlueMars. There are 53 universities in its SecondLife islands (3D locations), including Standford, MIT, Harvard, Cambridge, Illinois, Cornell University, Princeton, California Institute of Technology, Drexel University and several other leading universities in the world.

Universities use virtual worlds to: conduct online conferences, distance collaboration between universities, conduct online lectures, seminars and trainings for creating multiplayer educational games. For example, around 80% of UK universities use virtual worlds in the learning process.

The most active simulation based on visualization is used at Stanford University. For example, professor of archeology John Rick launched a project that allows students to view the maze of his archaeological excavations as virtual panoramas of reality.

All of the above-mentioned Gamification tools are a powerful learning tool, complementing existing distance courses, and sometimes even replacing them completely, because: provide motivation; offer different means of simulation as a simulation of real activity; combine different stages of obtaining experience. They are often free for academic use, and therefore can be tested with minimal risk in the learning process.

The most recent trends regarding the processes that are currently moving from the laboratories of universities and companies into the educational space are:

➢ **The use of augmented reality (**in educational institutions, mainly medical and technical). For example, the Massachusetts Institute of Technology within the framework of the MIT Teacher Education Program interact, while in real life using GPS equipment. Columbia University is also actively using the augmented reality.

➢ **Use of so-called spatial operating environments** ("spatial operational environments") that allow for collective work by combining objects of real and virtual worlds (available sign management). A striking example is the G-speak platform, the development of which was launched at the Massachusetts Institute of Technology in MIT media lab. It provides the ability to collaborate using gesture interfaces. In the research lab of visualization at the University of Illinois, CAVE's own development using 3D-image on all walls of the audience and system management using gestures (motions) is used. CAVE and G-speak are expensive systems specially developed for collaboration. The availability of Microsoft Kinnect and its software (educational applications developed at a number of universities, including the MIT and other hardware for providing hand-held interfaces, have led to the creation of cheap G-speak analogues by various companies and universities.

Conclusions. Innovation is now seen as a product of purely scientific research or technology. The result of innovation activity now depends on organizational, social, economic and other factors. Consequently, the nature of innovation is changing, as well as the economy itself, which now claims to be the status of knowledge economy. Today's social requirement for universities is to be not only more dynamic and "flexible" but also more open systems, which means that higher education institutions need to more accurately and actively position their contribution to the innovation process and social development.

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РЕЗУЛЬТАТИ ЕКСПЕРИМЕНТОЇ ПЕРЕВІРКИ ЕФЕКТИВНОСТІ МЕТОДИКИ НАВЧАННЯ МАГІСТРІВ-ФІЛОЛОГІВ УСНОГО ПОСЛІДОВНОГО ПЕРЕКЛАДУ

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EXPERIMENTAL TESTING RESULTS OF THE EFFECTIVENESS OF THE METHODS OF CONSECUTIVE INTERPRETING TRAINING TO MASTERS-PHILOLOGISTS

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Анотація
У статті представлено методичний експеримент, організований з метою перевірки ефективності методичної системи формування фахової компетентності усного перекладача у зовнішньоекономічній сфері на матеріалі англійської та української мов. Сформульовано гіпотезу експерименту, наведено дані передекспериментального та післяекспериментального зрізів. Описано етапи проведення методичного експерименту. За допомогою методів математичної статистики інтерпретовано результати експериментального дослідження. На основі отриманих даних щодо результативності двох варіантів методики зроблено висновки і доведено ефективність одного з них.