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ORGANIZATION OF DISTANCE LEARNING FOR MEETING THE NEEDS OF MODERN STUDENTS

Abstract. The use of modern information technologies, including distance learning, significantly strengthened the traditional approaches to the educational process in higher education institutions. On the one hand, the reason for this is the rapid development of information and communication technologies, and as a consequence, appearance of new modern pedagogical approaches to conducting lectures, practical and laboratory trainings. On the other hand, students also have changed. Under present conditions, they have a number of personal qualities that were not inherent to pupils and students of previous years. The article argues the use of distance learning technologies and the possibilities of modern specialists trained in educational measurements in the field of distance learning.

Keywords: distance learning, distance education, distance learning principles, net generation, educational measurements.

1. INTRODUCTION

The problem statement. The relevance of distance learning is undeniable and recognized by many researchers. For some experts' opinion, this form of learning is one of the leading forms in the 21st century.

Based on the fact of rather quick deterioration of professional knowledge, the knowledge needs continuous improvement. The use of distance learning contributes to the creation of the mass lifelong learning that is independent of place and time. In addition, the distance learning systems can be the key to implementing of the human right to education, regardless of the social status.

Analysis of recent studies and publications. Distance learning was investigated by many domestic and foreign researchers such as A. A. Andreyev, V. Y. Bykov, I. Gorokhovskiy, R. S. Gurevych, V. V. Ilyin, G. O. Kozlakova, A. P. Kudin, B. M. Kuharenko, N. V. Morze, V. V. Oliynik, Y. S. Polat, Y. M. Smyrnova-Trybulska, O. D. Sotnykova, P. V. Stefanenko, A. V. Khutorskiy, D. V. Chernilevskiy, J. Bartram, T. Bates, M. Beaudoin, B. Lockee, S. Catherine, F. Willits, M. Cornelia, S. Feldman, G. Randy, N. Hara, R. Jones, B. Lockee, A. Mishra, T. Nunan, F. Saba, M. Soby, C. Wedemeyer, R. Widdison et al.

The Order of Ministry of Education and Science of Ukraine «On approval of distance learning» (from 25/04/2013, #466) defines the basic principles of the organization and implementation of distance learning [1].

According to the order, distance learning is understood as individualized process of gaining knowledge, skills and methods of human cognitive activity, which is mainly performed due to mediated interaction between the educational process participants, which are distant from each other, in the specialized environment that works on the basis of modern psycho-educational and information and communication technologies.

Psychological aspects and teaching aspects of education, including peculiarities of modern students learning, are researched by V. P. Andrushchenko, Y. K. Babanskyi, V. Y. Bykov, M. I. Zhaldak, N. M. Kuzmina, N. V. Morze, P. I. Pidkasystyi, Y. S. Ramskiy,

Z. I. Slyepkan, Marc Prensky, Dave Roos, K. Sithole, B. D. Ikotu, E. K. Onyari, D. G Oblinger, Don Tapscott and others.

The article's goal. The article argues the use of distance learning technologies and the possibilities of modern specialists trained in educational measurements in the field of distance learning.

2. THE THEORETICAL BACKGROUNDS

According to the theory of generations [2], there are four types of generations:

- 1) Traditionalists (born in 1925–1945);
- 2) Postwar generation (born in 1946–1964);
- 3) Generations X (born in 1965–1980);
- 4) Generation Y or net generation (born after 1981).

Scientists also point out one more category of the youngest generation - Generation Z (born after 2000).

The article is devoted to the fourth generation category (net generation), as the modern (current) students belong to this category. There are many terms used to identify these young people. For example, network generation (Net Generation), Y-generation (Generation Y), the millennium generation (Millennials), Digital Generation (Digital Natives), conquerors (Trophy Kids) et al.

A large number of researchers note that the teaching of these young people (net generation) is very different from the process of teaching of the previous years students [3; 4; 5; 6; 7]. Modern students have a number of characteristics which are fundamentally changing the traditional educational process. Understanding this, educators can simplify the process of learning, motivate students, enhance their scientific and educational activities and, as a result, improve the efficiency and effectiveness of training.

3. THE RESULTS AND DISCUSSION

3.1. Relevance of distance learning for modern students

Foreign scientists distinguish eight essential features and characteristics of net generation students [7]:

- freedom;
- entertainment;
- collaboration;
- customization;
- criticality and skepticism;
- honesty and integration;
- speed;
- innovation in the modern world and, as a consequence, in their life.

Considering these characteristics, it becomes clear that most of them can be easily applicable in the terms of distance education. In support of this, the known distance learning principles are indicated below. The list of the principles is sorted according to their importance for the features and characteristics of net generation. These principles are consistent of [8; 9; 10]:

1. Interactivity principle.

The peculiarity of this principle (in terms of distance learning) is the fact that it reflects regularity of not only student-teacher communication, but also student — student communication (due to the distant learning technologies).

2. Principle of the training openness and flexibility.

Conducting of training process is characterized by the time, place and rate that should be convenient for the student.

3. Humanistic principle.

The essence of the principle is a focus of teaching and learning process on a person in general, creating of favorable conditions for gaining of the social experience and mastering of the chosen profession for the development and demonstration of the creative individuation and civil moralities, etc.

4. Training mobility principle.

The principle consists in creation of networks, knowledge bases and databases for distance learning, which enables the students to correct or complement their educational program (as needed) in the absence of appropriate services in high school where they are receiving education. The students get an opportunity of the change-over from one university to another for studying with a specialization in related or other fields.

5. Security principle.

According to this principle, it is necessary to provide organizational and technical means for secure and confidential storage, transferring and using of training materials.

6. Identification principle.

It consists in tighten control/monitoring of students' self-dependence; because there are more opportunities for falsification of education under conditions of distance learning (e.g., in comparison with full-time attendance).

7. Principle of learning process intensification.

The intensification is getting of greater scope of knowledge and skills by students without the training time increasing and education quality changing.

8. Principle of student cognitive activity intensification.

Intensification of scientific and educational activities in terms of distance learning is achieved through increased students' motivation; enhanced cognitive interest in learning activities; taking into account the individual characteristics of the student; dynamic visualization (illustration); diversity of training materials and working form; the presence of feedback, etc.

9. Principle of creative nature of students' cognitive activity.

Creativity is ability to produce fundamentally new ideas.

10. Individual educational path principle.

According to this principle, students have a choice at all stages of the learning process: while setting of personal educational goals and during choosing of the main areas, forms and rates of studying.

11. Modular approach principle to elaborate content and organization of the educational process.

All training materials (in terms of distance learning) are divided into modules. The modules are logically complete information blocks that are individualized (personalized) in accordance with content, teaching methods, complexity level, degree of self-dependence, and rate of students' scientific and educational activity. Learning of the modules is performed according to the learning objective.

12. Principle of using state-of-the-art information technologies.

13. Starting knowledge principle.

For the purpose of effective learning (in terms of distance education), it is necessary to have some initial competence level of potential trainees.

14. Principle of learning scheduling.

It is widely thought that the learning time (in terms of distance education) is not strictly scheduled, and it is unreasonable to introduce an independent work schedule for students. However, the experience shows that, conversely, in this case it is necessary to realize strict control and careful scheduling of educational process (for juniors in particular).

15. Principle of pedagogical usefulness of new information technologies.

This principle is one of the leading educational principles, and it requires teaching evaluation of all steps of planning, preparing and training in terms of distance education.

16. Principle of education content selection.

The content must meet the regulatory requirements of State Educational Standard and current market requirements.

17. Non-antagonism principle of distance learning in relation to existing educational forms.

The effectiveness of distance learning depends on its non-strangeness (natural integration) in traditional higher education system.

The first twelve principles can be imaginatively divided between the net generation characteristics (fig. 1).

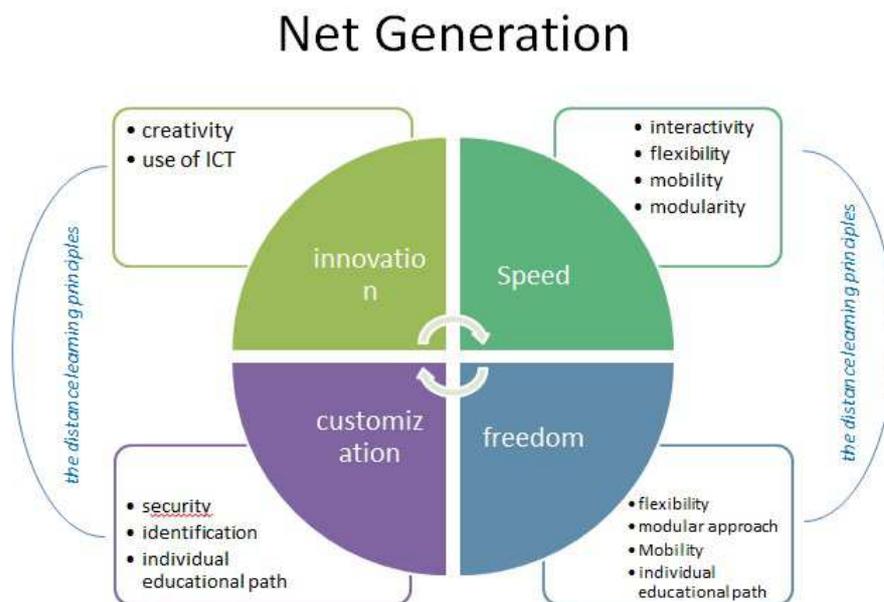


Figure 1. The relationship between the net generation characteristics and the distance learning principles

The other five distance learning principles make a provision for quality and effectiveness of education of all students, including net generation. For example, the principle of pedagogical usefulness is important during organizing of educational process (both traditional and distance).

3.2. The other four net generation characteristics

The article pays individual attention to the other four net generation characteristics, which do not clearly match distance learning principles.

Collaboration. The traditional educational system often induces mental stereotyping, lack of self-confidence, passivity, and formalism in professional activities.

Therefore, pedagogical interaction (i.e., collaboration and co-creation) is one of the most important elements of learning activity. This interaction ensures independence, creativity, and initiative of students. That is, the use of state-of-the-art information technologies, such as distance learning, is urgently needed for education of net generation students.

Another feature of net generation is games/entertainment. Many modern scientists define this concept in the following way. Edutainment is a form of student cognitive activity that is carried out according to certain rules in order to specific tasks solution. The purpose of this process is interesting and exciting solution of the learning problem.

Examples of such activities are listed below:

- audio and video;
- streaming media;
- 3D audio and video;
- radio, movie, television;
- virtual museums;
- brain games (development games);
- virtual worlds (3D environment visualization).

An example of educational virtual worlds is vAcademia project.

VAcademia is a means for organizing the learning process under distance learning conditions. VAcademia contains a virtual center for all educational process participants, interactive whiteboards, textual and voice communication, and support for webcams and 3d-recording. Each user has his/her VAcademia electronic counterpart (avatar) used in the training process. For more information on the project, visit the official website <http://vacademia.com>.

The advantage of this project is the ability of integration of VAcademia with Learning Management System (LMS). It enables educators to use the already-proven technologies combining them with new ones.

Honesty and integration. This net generation feature is closely related to the previous one (collaboration). As stated by D. Roose, it is necessary to remember that today's young people feel themselves at ease and natural while using the World Wide Web for learning purposes and personal goals. They are willing to make any electronic interaction with classmates and peers throughout the entire world. Modern students feel comfortable while creating and maintaining online-relationship, they are becoming "good friends" with people they have never personally met [4]; because of this, honesty (in such relations) is one of the main features.

The last net generation feature is criticality and/or skepticism. This rule is extremely important, especially for distance learning. Now students must know and understand that their e-mails, social network pages, monetary transactions over the Internet, etc., may be read, copied or destroyed by other people. The issue of the Internet security is becoming very urgent. On the other hand, criticality as a personal quality is undeniably important while working on the Internet. The validity/truthfulness of educational information is one more major issue (problem) that arose during training in the distance environment.

3.3. Competencies formation of future educators in the field of distance learning

Appropriate competencies formation is one of the urgent issues for Masters, future professors, because now almost all higher education institutions have implemented (partially or fully) distance educational form.

Incidentally, the developed course “Organization of distance learning in education institutions” is designed to prepare professionals (in pedagogical education institutions) who are studying with a specialization in the field of “Educational Measurement”. This course is one of the compulsory courses of the scientific-subject training cycle. Learning of this should make provision for appropriate practical training preparation of future professionals in the field of distance education and organization of distance learning in the higher education institution.

The main purpose of the course is to develop students’ practical knowledge and skills in using of various distance learning systems for organizing both full distance and blended (traditional and distance) learning in the higher education institution. The course assists students in formation of the knowledge and skills in using of the distance learning technologies for professional upgrading.

As a result of studying of the course «Organization of distance learning in education institutions», students should be able to:

- access resources and services of the Web-class KhPI, Agape and Moodle distance learning systems;
- register as trainees, educators in the Web-class KhPI, Agape and Moodle distance learning systems;
- use and create information resources in the Web-class KhPI Agape and Moodle distance learning systems;
- use the services and resources of courses in the Web-class KhPI Agape and Moodle distance learning systems;
- create, open, use, copy, save and send messages and files of different formats in the Web-class KhPI, Agape and Moodle distance learning systems;
- carry out the necessary actions for standard (common) situations in the Web-class KhPI Agape and Moodle distance learning systems.

The course consists of 3 modules:

1. Education in the XXI century. Open education and open society.
 - a) Globalization and the Bologna Process.
 - b) Information Society.
 - c) Open education and open society.
 - d) Virtual University.
 - e) Web 2.0 technologies in the education system.
2. Distance Education. Distance learning.
 - a) History of distance learning.
 - b) Legislative framework for distance learning.
 - c) Concept of distance learning. Distance Education.
 - d) Role of the educator in terms of distance learning.
 - e) Control/monitoring of training activities in terms of distance learning.
 - f) Problem of falsification of training activities in terms of distance learning.
 - g) Blended learning.
3. Source environments for distance courses development.
 - a) General characteristic of source environments for distance courses development.
 - b) Standards for development of distance learning courses.
 - c) Brief description of the platform for distance education.
 - d) Choosing a platform for distance learning.
 - e) The distance course structure.
 - f) Indicative themes of laboratory trainings
 - g) Virtual universities.
 - h) Legislative framework for distance learning. Copyright.

- i) The Web-class KhPI distance learning environment.
- j) The Agape distance learning environment.
- k) The Moodle distance learning environment. Presentation of theoretical material.
- l) The Moodle distance learning environment. Presentation of practical material.
- m) The Moodle distance learning environment. Test.
- n) Use of Web 2.0 technologies for distance learning. Knowledge map.
- o) Use of Web 2.0 technologies for distance learning. QR-codes.
- p) The use of Web 2.0 technologies for distance learning. Google services.

3.4. The theme of the use of Web 2.0 technologies

The theme of the use of Web 2.0 technologies in distance education, (i.e., the possibility of QR-codes using in distance courses) is considered below.

QR (Quick Response) codes are miniature data media where the text messages (about ½-A4 page size) are saved (fig.2).

This data coding option gained popularity in Japan, because of the need for text and numeric data coding due to small images using. QR-codes are designed to saving of large amount of data under conditions of a small area of their placement.

The most common formats in the distance learning system:

- Internet address. QR-codes may include links to the Internet resources. Placing them in the distance course, it is possible to create a list of references and the Internet sources for the course, as well as links to multimedia sources and resources, the use of which assist in solving of a particular problem.
- Contact information. Visiting cards of authors, tutors and assistants can be placed in the form of QR-codes in terms of the distance learning system. It is possible to scan the code and save the contacts in the address book of the phone or computer. This helps to generate address books of all participants of distance education.
- Practical tasks. Due to QR-codes, it is easy to form tasks for self-dependent student work within distance courses: projects, quizzes et al. This helps to create self-dependent learning motivation of the students.
- E-mail address. QR-codes may contain encoded e-mail address and name of all participants of distance learning.
- Geographical information (data). QR-codes may contain encoded location of the object (e.g., Google Maps). These codes can be relevant for distance learning courses related to the subjects of natural geographical cycle.
- QR-codes of advertising type. Codes can be published on web pages, posters, etc. to promote educational institutions, distance learning courses or educational projects et al.



Figure 2. Example of QR (Quick Response) codes

While studying this, students are invited to perform the following laboratory training.

Subject: Distance learning and QR-codes. QR-codes creation.

Objective: Learn to create QR-codes, break of QR-codes and apply them in distance learning.

The concept: .

- ✓ QR-code;
- ✓ Generator of QR-Codes;
- ✓ Decoder of QR-codes.

Abilities:

- ✓ Create QR-Codes:
 - list of references to the Internet sources of the course;
 - visiting card card of distance learning tutor;
 - ecoded geographic data of the university;
 - quiz code.
- ✓ Edit QR-code.
- ✓ Read QR-code.
- ✓ Load QR-code in the Moodle distance learning system.

Tasks.

1. General:

Be acquainted with the work of QR-codes creation service (<http://qrcoder.ru/>). Create the QR-code, which is consistent of encoded location data of the university.

Be acquainted with the work of the reading QR-codes service (<http://qr.foxtools.ru/>). Read the code.

Edit the QR-code.

2. Individual:

- a) Create QR-code of the visiting card of the distance learning course tutor.
- b) Create QR-code of the list of references to to the Internet sources of the course.
- c) Create QR-code of distance learning course advertising
- d) Create tasks for self-dependent work of students within distance courses using QR-codes.
- e) Upload created tasks to the distance course using resource “page“.
- f) Taking advantage of the service “quiz” (<http://www.classtools.net/QR/>), create the quiz and upload tasks to the course.

4. THE CONCLUSIONS AND PROSPECTS OF FURTHER RESEARCH

Analysis of the characteristics of net generation students demonstrated that now it is impossible to provide quality education without implementation and application of distance education forms. Therefore, the training of future educational measurements specialists should include the formation of the necessary competencies related to the use of state-of-the-art distance learning technologies. Taking the abovementioned into consideration, it is recommended to implement the courses forming competencies in the field of distance learning into the educational process of Masters and future educators of higher education institutions.

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ОРГАНІЗАЦІЯ ДИСТАНЦІЙНОГО НАВЧАННЯ ДЛЯ ЗАБЕЗПЕЧЕННЯ ПОТРЕБ СУЧАСНИХ СТУДЕНТІВ

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Анотація. Використання сучасних інформаційних технологій, зокрема дистанційного навчання, значно підсилило традиційні підходи до організації навчально-виховного процесу вищих навчальних закладів. З одного боку, причиною цього є швидкий розвиток інформаційно-комунікаційних технологій і, як наслідок, поява нових сучасних педагогічних підходів до проведення лекційних, практичних, лабораторних занять. З іншого боку, змінився сам студент, який відповідно до сучасних умов володіє низкою якостей особистості, які не були притаманні учням і студентам попередніх років. У статті аргументується використання дистанційних технологій навчання, а також розглянуто можливості підготовки сучасних спеціалістів освітніх вимірювань у галузі дистанційного навчання.

Ключові слова: дистанційне навчання; дистанційна освіта; принципи дистанційного навчання; мережеве покоління; освітні вимірювання.

ОРГАНИЗАЦИЯ ДИСТАНЦИОННОГО ОБУЧЕНИЯ ДЛЯ ОБЕСПЕЧЕНИЯ ПОТРЕБНОСТЕЙ СОВРЕМЕННЫХ СТУДЕНТОВ

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Аннотация. Использование современных информационных технологий, в частности дистанционного обучения, значительно усилило традиционные подходы к организации

учебно-воспитательного процесса высших учебных заведений. С одной стороны, причиной этого является быстрое развитие информационно-коммуникационных технологий и, как следствие, появление новых современных педагогических подходов к проведению лекционных, практических, лабораторных занятий. С другой стороны, изменился сам студент, который в соответствии с современными условиями обладает рядом качеств, которые не были свойственны ученикам и студентам предыдущих лет. В статье аргументируется использование дистанционных технологий обучения, а также рассмотрены возможности подготовки современных специалистов образовательных измерений в области дистанционного обучения.

Ключевые слова: дистанционное обучение; дистанционное образование; принципы дистанционного обучения; сетевое поколение; образовательные измерения.

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