Distance training for training and retraining of specialists on railway transport

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Abstract. The paper considers the advantages of distance learning in the education system, analyzes the implementation of the program for the training and retraining of specialists in railway transport based on the concept of the development of the higher education system in the Republic of Uzbekistan to ensure the strong integration of science, education and production in order to improve the quality of education, prepare competitive personnel, effective organization of scientific and innovative activities, taking into account the interaction of a higher educational institution and production.

1 Introduction

In today's difficult conditions, the most urgent problem is the socio-economic and technical and technological development of the Republic of Uzbekistan. January 20, 2020 President of the Republic of Uzbekistan Shavkat Mirziyoyev, (application of the Parliament), noted separately in the report: “As we strive to turn Uzbekistan into a developed country, we can only achieve this through accelerated reforms, science and innovation. To do this, we must first educate a new generation of enterprising reformers, strategic thinkers, educated and skilled” [1]. One of the important ways to solve this main problem is the training of a new generation of personnel in the system of continuous education, that is, modern personnel [2].

One of the country's main documents on education reform, the National Training Program of the Republic of Uzbekistan [1], emphasizes the need to organize the educational process based on information and communication technologies (ICT), Internet and computer networks in educational institutions that meet the requirements of a market economy. In the education system of our country, these tasks are carried out in a timely and efficient manner. To achieve this goal, consistent and consistent coordinated measures are being taken.

In particular, in order to introduce large communication networks and Internet technologies into the educational process, the task is to create a nationwide network "Electronic Education" and connect all universities, and then academic lyceums and professional colleges into a single computer information network ... [3-6] and these measures are now being successfully implemented in an integrated manner. In order to achieve these goals more successfully, it is necessary to develop and implement new

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innovative measures and proposals that can have a positive impact in this area. One such measure is modern ICT-based distance learning (DL), a learning process that is widely used in the education system of developed countries to train quality personnel.

The concept of development of the public education system of the Republic of Uzbekistan until 2030 provides for measures to develop public education [7].

Among the main objectives of the concept:

- Qualitative renewal of the content of the system of continuous education, as well as training, retraining and advanced training of professional personnel;
- Improvement of teaching methods, phased implementation of the principles of individualization of the educational process;
- Introduction of modern information and communication technologies and innovative projects into the public education system.

2 Method

Distance learning is the most important and increasingly popular form of modern education [8-10]. The rapid development of information and communication technologies in modern conditions has created favorable conditions for using their potential in the educational process. Currently, leading foreign countries have accumulated rich experience in distance learning. It is believed that distance learning technology was created in 1969 at the initiative of British Prime Minister J. Wilson. But distance learning happened much earlier, that is, during the formation of the first stable, regular postal service. Since 1858, at the University of London, all graduate students have been allowed to study independently, taking examinations in all specialties and degrees in all fields. Since 1938, the International Council for Distance Education has operated as an international educational organization, known as the International Council for Distance Education since 1982. The cost of studying at open universities is 8-10 times cheaper than studying at traditional institutions. In the UK it costs £3,000 for face-to-face training and only £300 for distance learning. Maintenance costs for buildings, equipment and laboratory, teaching, administrative and service personnel will be reduced. Students will be consulted through a network of affiliates, a television studio and a computer network. In the UK, the undergraduate program includes 130 courses, many of which are interdisciplinary.

Distance learning began to develop rapidly in the United States in the mid-1960s and in Europe in the early 1970s. This form of education is a purposeful interactive process of interaction between students and teachers with each other and with teaching aids, while the learning process does not depend on their geographical and spatial location. The educational process consists of subsystems, that is, a specific pedagogical system, which includes elements such as purpose, content, methods, tools, organizational forms, control, educational material, financial, economic, legal and marketing.

DL is a process that connects a teacher and a student located in different geographical regions, and the interaction is carried out using special technologies. Various methods are used for communication: exchange of printed materials by mail or fax, audio conferences, video conferences, computer virtual conferences. Naturally, those who live far from the university do not have the opportunity to study, want to improve their skills, are disabled and for various other reasons do not have the opportunity to study directly at the university, the need for distance education is increasing.

The use of traditional distance learning methods for people who do not have the opportunity to study in a stable environment, people with disabilities, as well as students of retraining and advanced training courses, applicants who want to study in foreign educational institutions creates comfortable conditions. DL is a very handy tool, especially for busy adults who want to study for a second major. DL can be considered as an
education characterized by the following five main conditions: - the presence of a teacher and a student; - implementation of the educational process at a certain distance; - two-way communication between teacher and student; - special materials for distance learning; - availability; - computers and other equipment and means of communication of both parties; - funded. In our opinion, for the formation and development of the “ICT system” in higher education, including distance education, the following are important: retraining of highly qualified personnel to achieve the set goals; - training of specialists based on new needs, i.e. market formation; - Proper consideration of quality requirements in the training of new employees; cooperation with subjects on the basis of integration; — the mechanisms required or involved in the activity; - building relationships and working with them; - creation, modification and improvement of market elements; - For example, tax legislation, regulation of the external environment and security; acceleration of the process of turning knowledge into a commodity, financing of innovative activities aimed at their implementation. The use of ICT in society and the economy ensures innovative development. Its directions: - application of ICT in the management of educational systems; - creation of ICT libraries and information resource centers; - application and use of ICT in the educational process. As mentioned above, the sale and purchase of necessary knowledge means that it has become a commodity.

This is due to the fact that the constant updating of knowledge and its application by labor resources is the key to socio-economic development. Innovations should be widely applied in higher and secondary specialized educational institutions that specialize in education.

Currently, the world has accumulated significant experience in the implementation of distance learning systems (DLS). In general, the global trend of transition to non-traditional forms of education can be traced in the growth in the number of universities that provide training in new information technologies. In accordance with the studies conducted by scientists of the republic and abroad, it is possible to obtain information that about 1 million people study in the DL system in the USA. Thus, the National Technological University, which represents a consortium of 40 engineering schools, in the early 90s provided training for more than 1,100 students using distance methods for a master's degree.

For DO in the US, "Digital TV" is widely used. The PBS-TV public broadcasting system has over a million students. The adult education program includes courses in science, business, and management. The National University of Distance Education (UNED) has been operating in Spain for more than 20 years. It includes 58 training centers within the country and 9 abroad.

DL is also developing in many other regions of the world. As examples of developing distance education, one can cite the Chinese Teleuniversity (China), the National Open University. Indira Gandhi (India), Painam Noor University (Iran), Korean National Open University (Korea), University of South Africa, Sukhothai Tampratit Open University (Thailand), Anadolu University (Turkey).

Each stage of the development of society has its own form and content of the process of teaching new generations, transferring accumulated knowledge, skills, and traditions. Since the end of the 20th century, new computer technologies for information exchange have created the technical possibility of even greater mass education, tore apart the information boundaries of states, and made it possible to speed up the speed of information exchange thousands of times and increase its volume. The introduction of information technologies into the diverse human activities has created a need for a qualitatively new education.

The current socio-economic situation in the country and in the education system is such that traditional forms of education and training models cannot meet the needs for educational services, usually concentrated in large cities. At present, there are significant categories of people in the republic who are in dire need of educational services, but do not
have the opportunity to receive them in the traditional way within the framework of the existing educational system.

The way out lies in the search for new forms of education. One of them was distance learning (DL). Being a consequence of the objective process of informatization and incorporating the best features of other forms, distance learning has entered the 21st century as the most promising, humanistic, integral form of education.

3 Results and discussion

The world has accumulated considerable experience in the implementation of distance learning method systems (LMS). In general, the global trend of transition to non-traditional forms of education can be traced in the growth in the number of universities that provide training in new information technologies (IT) [11-15].

It can be noted that distance learning as an integral, humanistic form is being introduced into the education system of all countries of the world at almost all levels. A special place is occupied and actively developed by corporate systems of additional training, retraining and advanced training of personnel at industrial enterprises and firms [16-23].

The results of the study showed that any pedagogical system (Figure 1) consists of the following interrelated elements:
1. Students.
2. The purpose of education and training.
3. The content of education and upbringing.
4. Educational process or didactic process.
5. Technical means of teaching or learning.
6. Organizational forms of education and training.

The above pedagogical system, as is typical of any scientific theory, covers the following two concepts: didactic questions and the technology for their solution. Didactic issues in the pedagogical system, as in any field of human activity, require specific goals and conditions for its achievement, as well as information for this activity.

Fig. 1. The structure of the pedagogical system, common to types of education.

In Uzbekistan, elements of DL began to be introduced from the beginning of 1998. The number of educational institutions conducting educational activities using distance learning technologies is increasing from year to year. The degree of use of DL technologies in them is different: from an experimental version to a full-fledged educational process.
When we talk about new information technologies in education, first of all, we mean interactive pedagogy, distance education (DL), learning systems and other forms of pedagogical integration [24].

New information technologies make it possible not only to transfer information to the student, but also to provide management of the learning process itself, developing its intellectual abilities and practical skills.

The distance learning method has been known for a long time, for example, in Western Europe it is used in the form of "open" universities, such universities are funded by the state.

In recent years, DL has been developing very intensively in Uzbekistan as well. Sufficient attention is paid to this area in the city of Tashkent, Samarkand, Ferghana, in particular, at the Tashkent University of Information Technologies, Tashkent State Technical University, Tashkent State Transport University and other regional institutions where the center of distance education has been established.

DL is a more progressive form of education based on a specialized information and educational environment. The consumer himself chooses both the content and the time, place, terms of training.

The progress of science and technology in the field of IT, audio-video technology, telecommunications and communications, their introduction into education systems make it possible to widely use distance learning tools for students and specialists, for example, through an electronic library, using for this purpose both existing TV networks and advanced video information systems [24-28].

The wide development of the TV broadcasting network with the presentation to users of various types of services, video images and additional information, including for DO systems, required the development and implementation of effective means to protect them from unauthorized access. A gradual transition to the digitalization of TV systems and its components is being carried out, the possibilities of providing various additional services to subscribers, including connecting them to the Internet, are being explored. Therefore, it is important to consider the possibilities of full broadband digitalization of networks, where television services cover not only the institutional, but also the quarterly sectors, which will save communication costs.

The government of the Republic of Uzbekistan is interested in the successful implementation of the program for training highly qualified personnel and retraining of specialists in railway transport, and a number of documents have been adopted that determine the socio-economic policy of the republic:

The action strategy of the Republic of Uzbekistan for 2017-2021 indicates a number of tasks for the further development of road transport infrastructure, the introduction of information and communication technologies in the economy, social sphere, and management systems";

The action strategy for the five priority areas of development of the Republic of Uzbekistan in 2017-2021 also indicates a number of tasks related to the training and retraining of highly qualified personnel, the creation of effective mechanisms for introducing scientific and innovative achievements into practice, etc.

In our country, the organizational, scientific and methodological foundations for reforming the system of continuous education have been created, the main goal of which is to train full-fledged and highly qualified competitive specialists.

The main components of the "National Personnel Training Program" are the individual, the state and society, continuing education, science and industry, and they are interconnected.

The national training program is aimed at the formation of a new generation of personnel with a high general culture and professional culture, creative and social actionism,
the ability to find the right path in political and social life, to advance and solve future problems, as well as a comprehensively developed pedagogical idea of educating citizens who are well educated, well adapted to life in society, consciously master educational and professional programs and feel responsible to society, the state and the family.

The implementation of the requirements of this document requires a radical restructuring of the education system, that is, a revision of the conceptual rules for the development of public education and their positive solution in the short term. Solving these problems is directly related to deciding what to allocate, how much and how to teach from the very large information fund of the World Science Foundation. It is in this section that the current problems associated with the introduction of educational technologies are clarified. In addition, the period requires further expansion of work in this direction. The fact that some issues related to vocational training are not well reflected in the practice of teacher education also makes the issue of improving the relevant teaching methods relevant.

The National Curriculum has set a number of goals and objectives. Currently, most methodologists and scientists - teachers believe that pedagogical technologies fully guarantee the achievement of the goal in teaching students. But such ideas cannot be accepted instead of objective reality, because in this case the object is a person, and his mind cannot fully accept the proposed technology, but can deny it. Therefore, when introducing modern pedagogical technologies into the educational process, only the teacher, who is his leader, will be the main guarantor of achieving the goal.

If we look at it from this point of view, then when introducing new pedagogical technologies and information and communication technologies (ICT), which are its main basis, the level of training of the teacher who is his leader should be a priority. Therefore, a positive or purposeful solution of the most pressing issues on the agenda of pedagogical processes largely depends on the professional potential and pedagogical skills of the teacher.

Expanding the introduction of new pedagogical and information technologies in the educational process, applying the best practices in this area, developing and implementing specific plans in each area, transferring textbooks and teaching aids and programs and lectures to electronic media, with which each student must achieve the provision of scientific and scientific and methodological work, as well as the widespread introduction of modern pedagogical and information technologies in the educational process. In such tasks as adequate provision, connection of educational institutions to communication networks.

Therefore, the role and place of modern teaching methods - interactive methods, innovative technologies in the training of qualified specialists in the field of higher education and faculties is huge.

Innovative activity of a university teacher is one of the main problems of university pedagogy.

The process of modernization in the field of education has been going on for several years, and it is appropriate to call it an innovative process. In particular, a special place is occupied by changes in education based on new state educational standards.

The newly developed and implemented state educational standard requires teachers to improve the quality of education, apply new teaching methods in the educational process and teach students in accordance with modern requirements. In previous years, the growth of knowledge in the field of education was associated with information processes.

In our time, education is focused on the development of technology, personal development, the introduction of new pedagogical technologies [29-37] in the educational process. In order for a teacher to do his job correctly, it is necessary to be able to think freely and fully with the help of “innovations”, “novelty”, “innovations”, “pedagogical innovations”.
The innovative process in education is considered in three aspects: socio-economic, psychological-pedagogical and organizational-managerial. From these aspects, the passage of the innovation process depends on the general situation and conditions.

Innovation can be a random or controlled process. The introduction of innovations is connected, first of all, with changes in the functions of existing natural and artificial processes.

The structure of innovation can be: ready for implementation, scientific and theoretical knowledge of any innovation, new effective teaching technologies, completed project, effective pedagogical experience.

Currently, on the basis of the Tashkent State Transport University, where the "Road Center for Advanced Studies, Training and Retraining of Personnel" operates for railway transport, they are trained in all existing departments (services) of JSC "UTY" (Joint Stock Company "Uzbekistan Temir Yollari"), take an active participation in the organization of training and advanced training for the teaching staff of professional colleges of railway specialties.

To fully meet the needs of the railway transport industry in qualified personnel in all divisions of UTY JSC, it is carried out only on the basis of contracts with production employers.

Since 2018, the training of personnel in correspondence courses has begun, namely, special correspondence and distance learning. Special distance learning provides for the training of personnel with secondary specialized education with a certain work experience in railway transport. Currently, the republic is considering the possibility of introducing into the system of training skilled workers and mid-level specialists, which provides for the combination of theoretical training in educational institutions with practical training in production, i.e. branches of departments.

4 Conclusion

Thus, the new "informational" stage in the development of the world education system is objective and irreversible. The use of information technologies in distance learning and the introduction of distance learning in educational institutions for the training and retraining of young, gifted highly qualified personnel corresponding to the world level is the only possible way for the progressive development of the education system and, first of all, higher education. In the professional training and retraining of highly qualified personnel with new effective teaching technologies, both a higher educational institution and a professional educational organization are involved, which provides the student with the necessary theoretical training and the organization provides on-the-job training for the future specialist in the field. Such joint work on the integration of a higher educational institution and production contributes to an increase in the responsibility of both parties for the quality of training of highly qualified personnel.

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