

Improvement of Methodological Support of Teaching Discipline Information and Communication Technologies in Electronic Educational Environment

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Abstract *This article describes ways to improve the methodological support of teaching the discipline information and communication technologies in the electronic educational environment. The main objectives of the study are also described as the objectives of the study: to determine, analyze the pedagogical and psychological aspects of the problems of teaching the discipline information and communication technologies in the economic areas of higher education; improve the methodological support used in teaching the discipline information and communication technologies in the electronic educational environment; to form the professional competence of students on the basis of pedagogical and information and communication technologies through teaching the discipline information and communication technologies in the electronic educational environment; to develop recommendations for improving the criteria that determine the effectiveness of the organization of the educational process in the electronic educational environment using the improved methodological support of the discipline information and communication technologies. The analysis of factors influencing the improvement of the methodological support of teaching the discipline information and communication technologies in the electronic educational environment is presented. On a theoretical and practical basis of the study, recommendations and conclusions are made.*

Keywords: Innovation, C ++ Builder, PHP My Admin, MySQL, Oracle, Cisco Packet Tracer, Software.

i. INTRODUCTION

In the world, in the new concept of education adopted by international organizations and developed countries until 2030, education is recognized as the main driving force of development and an important activity leading to the goals of sustainable development. Modern pedagogical and information and communication technologies are actively used for high-quality education, the development of high-level skills and abilities of students and students, the creation of information and educational resources, and the identification of promising areas for modeling the educational process.

The world educational system examines the issues of improving the methodological support of academic disciplines, the formation and development of professional competence of students using electronic information and educational resources, mass and widespread use of multimedia, electronic information and educational resources. The priority tasks are the automation of production processes, the development of the economy using information and communication technologies, the introduction of modern information technologies in the management process, the continuous improvement of innovative knowledge, professional skills and abilities of students in fields of activity.

In our republic, to modernize the educational process, branches, joint faculties and educational centers are organized jointly in prestigious higher educational institutions of countries such as the United States of America, Russia, France, the

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Republic of Korea, China, Japan, Turkey, India, Latvia, and their material technical base. The Strategy for the Further Development of the Republic of Uzbekistan [24] defines the priority tasks as “continuing the course of further improving the system of continuing education, increasing the availability of quality educational services, training highly qualified personnel in accordance with the modern needs of the labor market”. In this regard, a solid foundation for identifying promising areas of education in our country creates an improvement in the professional competence of students, the formation of their leading experts in their profession in the future.

ii. MATERIALS AND METHODS

Methodology. The purpose of the study is to improve the methodological support of teaching the discipline information and communication technologies in the electronic educational environment.

Research Objectives:

- determine, analyze the pedagogical and psychological aspects of the problems of teaching a discipline information and communication technologies in the economic areas of higher education;
- improve the methodological support used in teaching the discipline information and communication technologies in the electronic educational environment;
- to form the professional competence of students on the basis of pedagogical and information and communication technologies through teaching the discipline information and communication technologies in the electronic educational environment;
- to develop recommendations for improving the criteria that determine the effectiveness of the organization of the educational process in the electronic educational environment using the improved methodological support of the discipline information and communication technologies.

The object of the study is the process of teaching the discipline information and communication technologies on the basis of improved methodological support for students in the economic areas of higher education.

The subject of the research is the content, forms, methods and means of professionally-oriented teaching of the discipline information and communication technologies in higher educational institutions on the basis of improved methodological support.

Research Methods. In the process of the study, methods of comparative study and analysis of psychological, pedagogical and methodological sources, didactic literature on the topic, GOS, curricula and programs, educational and normative documents, textbooks and educational and methodical literature, social and pedagogical (observation, conversation, diagnostics, questioning, testing), experiment, methods of mathematical and statistical analysis of monitoring results.

The scientific novelty of the study is as follows:

- based on the optimization of the modern needs of the labor market and application programs (AutoPlay Media Studio 8, Macromedia Flash 8, Movavi Video Editor Plus, Bandicam, Audacity), information and educational professionally oriented content of the discipline information and communication technologies;
- improved on the basis of trainings that develop decision-making, development of self-esteem and design skills for their professional activities, the pedagogical capabilities of motivational, communicative, organizational, gnostic, creative, reflective, analytical components;
- on the basis of factor analysis of reproductive, variable, partially search, creative and statistical indicators of components, the model of training future economists as professionally competent specialists has been improved;
- on the basis of strategic forecasting and systematization of parameters and indicators relating to professional activity, the criteria for an adequate assessment that determine the effectiveness of training and the willingness to carry out professional activities of future economists are optimized.

iii. LITERATURE REVIEW.

The theoretical and methodological foundations of the use of information and communication technologies, the

possibility of creating electronic literature, electronic information and educational resources, software shells, their use in the educational process are reflected in the studies of scientists like A.A. Abdukodirov [1], R. Bokiev [4], U. Begimkulov [3], N.Kayumova [12, 13], N. Rustamova [14, 15], B.Suropov [20, 21, 22], M.V. Goryainov [8], L.P. Grishchenko [10], T.A. Dyuzheva [6], M.A. Ivanova [11], V.V. Dovgan [7], I.V. Robert [16], E.E. Sivokon [18], I.B. Gotskaya [9], V.A. Ryzhov [17], A.B.Solovov [19], B.K. Atrostic [2], E. Brynjolfsson [5], L.E. Varshavskii [23] and others.

Theory and Discussion. The computerized educational environment is a field of activity related to the systematic organization of information, technical and educational-methodological support on the basis of integration, which ensures the prompt use of information using the software, technical, organizational and methodological tools of the information environment of higher education, scientific communications, realizing tasks in storage, processing and transmission of information.

An electronic educational system can be defined as a synonym for an informatized educational environment, as an organizational environment based on personal computers, telecommunications, methodological support and modern information and communication technologies, serving to meet the needs of users in educational sources.

Based on the goals and objectives of teaching the discipline “Information and Communication Technologies” in the economic areas of higher educational institutions, the problems in its teaching have been identified: the lack of methodological support that makes up the electronic educational environment in the teaching of this discipline, in particular textbooks, teaching aids, teaching aids and incomplete compliance of available literature with modern requirements, lack of knowledge, skills and abilities of teachers of the discipline We have “Information and Communication Technologies” in the field of economics, solving economic issues, and teachers of economic disciplines - in the field of information and communication technologies, and we have developed requirements for teachers in the process of teaching professionally-oriented modules provided for in the curriculum. The necessity of the ability to use the Microsoft Office programs by teachers is substantiated: MS Excel, MS Access; programs aimed at the object: C ++ Builder, PHP My Admin, MySQL, Oracle, Cisco Packet Tracer; interactive Internet services: soliq.uz, my.soliq.uz, my.gov.uz; programs serving automation of solving economic issues: IUZ, 1C, eStat 3.0., iABS-bank, etc., training students to use these programs in future professional activities.

The intensive development of informatization, the use of computers in all spheres of human activity creates new problems (wasting most of the time on unnecessary information, excessive use of social networks, computer addiction) and serves as an impetus for the development of new areas of research. Based on the current importance of studying the psychological and social aspects of the “man-computer” relationship, as well as finding ways to effectively use the discipline with information and communication technologies, the study establishes the need to take into account the discipline “Information and Communication Technologies” in the electronic educational environment on economic directions of higher educational institutions compliance with the following aspects: pedagogical: development and implemented the content of professionally oriented teaching (tasks for practical, laboratory studies and independent work); achieving a high level of scientific, problematic, interactive, visual and accessible in the classroom; the formation of knowledge, professional and skills of students in the field of information and communication technologies, economics; achievement of educational, educational and developmental goals of employment; taking into account the individual capabilities of students; teaching them self-diagnosis, selecting information, making the right decisions, correctly assessing the situation and psychological: explaining ways to avoid Internet addiction (autism) in the electronic educational environment; the achievement of operational memorization by students of the studied knowledge, the development of abilities, the formation of motivation, concentration of attention, the formation of willpower, proper goal-setting, tolerance in the assimilation of new knowledge, the desire for innovation, etc.

The study emphasized the need for teaching students the economic areas of information and communication technologies, teaching philosophical thinking, achieving awareness of the role of science in the development of society and in professional activities. Also highlighted is the need for the process of teaching students the discipline “Information

and Communication Technologies” to be effectively used as the formation of scientific knowledge in textbooks, electronic sources of education, manuals, databases, educational videos, models, laboratory developments and methodological manuals, the need to base knowledge to be studied on scientific knowledge and adherence to the sequence mixing → information → education → knowledge → scientific knowledge”.

Professionally oriented teaching of the discipline “Information and communication technologies” is based on students understanding the place of acquired knowledge in future professional activities, achieving unity of theory and practice, ensuring harmonious development of the personality through the formation of promising motivation.

In the framework of the study, methodological support was developed, which serves to organize the content of the discipline of information and communication technologies related to the professional activities of students in economic areas and the organization of the educational process in the electronic educational environment, the formation of skills for solving economic problems of various difficulty levels, the preparation and provision of financial, statistical reports, the formation of motivational, communicative, analytical component of the level “I am an economist”, professional competence, the study reported a teacher of new knowledge for the discipline, taking personal decisions.

The chapter discloses ensuring the quality and effectiveness of education through studying economic areas with students using spreadsheets, applying, in accordance with the topics of the electronic educational environment, the curriculum such as “Learning the tasks of economic functions, creating macros, new functions, and function keys”, “Training for the automation of the work of the personnel department in the MS Access program,” “Training in the preparation of credit, remuneration of labor and the revaluation of goods, the preparation of tax reports of an enterprise,” the preparation and provision of a statistical report of a 1-KB enterprise (small business)”, “ Training in the provision of an enterprise tax report using the electronic government services portal of the tax authorities my.soliq.uz ”, “ Training in using the iABS banking system for corporate clients of banks”, methodological the provision has been improved with a focus on the profession.

The regulatory documents indicate the requirements for electronic educational literature, electronic educational resources used in the electronic educational environment. These include: modularity, completeness, visibility, branching, controllability, adaptability, computer support, collectability, as well as didactic, technical and technological requirements that must be developed by basic higher educational institutions. Based on this, the study found: the creation of electronic educational resources using software for organizing the electronic educational environment: Moodle, WordPress, PHP, Turbo Site, Bandicam, Audacity, Movavi Video Editor Plus, AutoPlay Media Studio 8, Macromedia Flash and their effective use in The educational process contributes to the effective formation of professional competence of students.

Also, as part of the study, an electronic information resource was created that is used in teaching the discipline, using AutoPlay Media Studio 8, Macromedia Flash 8, Movavi Video Editor Plus, Bandicam, Audacity programs, and a methodology has been developed for using it in the educational process.

This educational resource creates methodological opportunities for students: to study topics through a computer using text, video, animation; pass testing in the academic discipline and receive an individual assessment; to study the theoretical data, concepts, definitions and explanatory glossary of terms (glossary) in electronic form using presentations, slides;

for teachers: receive guidelines for teaching the discipline "Information and communication technologies"; use in teaching the development of lecture, practical and laboratory classes, demonstration presentation slides, video manuals; in assessing the knowledge, skills and abilities of students with tests and questionnaires.

The use of an electronic information and educational resource in the educational process, which has incorporated the improved methodological support of the discipline “Information and Communication Technologies”, is of practical importance in the formation of students' skills to solve economic problems in professional activities using information and communication technologies, the formation of prospective students' motivation, and the achievement of lasting mastering professional knowledge, students foreseeing their future activity, place in society, etc.

As a result of the study and analysis of scientific research and practical pedagogical experience, a model has been

developed for training students in economic fields in the electronic educational environment using information and communication technologies by professionally competent specialists.

The model was developed taking into account the goal of preparing students of economic areas of higher educational institutions for professional activities (improving the methodological support of the teaching methodology of the discipline "Information and Communication Technologies" in the electronic educational environment), content (preparing future economists for professional activities using office programs; programs aimed at object; interactive Internet services; programs that serve to automate the decision to save tasks in improving the content of the curriculum with adaptation to the specialty), using computer programs in creating an electronic educational environment, the content of which includes improved methodological support for the discipline "Information and Communication Technologies". The possibilities of using methodological support with improved content and an electronic educational resource for teaching the discipline "Information and Communication Technologies" for students in the areas of accounting and auditing, economics, professional education: economics, finance, management, marketing, etc.

It was put into practice the training of students in economic areas of higher educational institutions through educational technologies (modular, problem-based learning, work in small groups, technology assessment, graphic organizer, interactive methods, etc.), aimed at the result (determining the level of students' mastering of the discipline "Information and communication technologies" based on the developed evaluation criteria.

As a result of the improvement of the methodological support of the discipline "Information and Communication Technologies", the following professional skills of students of economic areas of higher educational institutions were formed: studying methods and means of selecting, processing, storing, transmitting information on a specialty on the Internet; management of economic information using computer technology; selection of software in solving economic problems in accordance with the task; analysis of the financial statements of the enterprise and justification of the results; use of domestic and foreign sources of information; the use of information and communication technologies in solving professional problems; assessment of their activities, making personal decisions, etc.

Also, it was deemed appropriate to organize seminars on the topics: "I am an entrepreneur", "Beginning businessman", "Compiler of a business plan", "Accountant", "Forms of doing business", "Bank manager", etc., related to the activities of an economist, and the compilation of programs of economic problems using information and communication technologies for vocational guidance and increasing student interest.

iv. EXPERIMENTAL RESULTS

The experimental work was carried out during the 2015-2018 academic year in the economic areas of undergraduate education at Karshi Engineering and Economics Institute, Samarkand Institute of Economics and Service, Bukhara State University. A total of 760 students in economics (economics, finance, accounting and auditing, professional education: economics, management, marketing) were invited to the experiment (259 of them were girls, 501 guys).

In the course of the experiment, attention was paid to the following aspects: the content of the improved methodological support of the discipline "Information and Communication Technologies" with the curriculum requirements; scientific and methodological aspects of lecture, practical and laboratory studies in improved methodological support; the level of assimilation of lecture, practical and laboratory studies of improved methodological support for students; the advantages of using the methodological manual for practical and laboratory studies in the electronic educational environment; the introduction of an information and educational resource created with the aim of obtaining knowledge and self-esteem of students in the educational process; the growth of interest, the assimilation of students of the prepared educational material for experimental groups in comparison with students of control groups; development of students' skills in solving professional problems as a result of practical and laboratory studies prepared for experimental groups; increased interest in the discipline, quantitative and qualitative indicators of the development of independent professional thinking are subjected to comparative analysis.

In the selected experimental groups, classes were organized on the basis of an electronic educational environment,

improved methodological support; in control groups - based on traditional methods. In determining the readiness of future economists for professional activities as criteria of professional knowledge and competence based on information and communication technologies in the electronic educational environment, criteria and indicators are applied.

In order to compare students' assimilation (performance), the results of 7 practical (14 hours) and 7 laboratory tuition (14 hours) classes were subjected to a full analysis, the methodological support of which was improved.

As a result of observations, analyzes, tests, conversations with students and teachers, the conclusion was formulated: when organizing lectures, practical and laboratory classes in the discipline "Information and communication technologies" using pedagogically and methodologically sound electronic information and educational resources, one can dramatically increase the level of professional knowledge, skills and abilities of students.

To verify the reliability of the research results, a conformity criterion was applied based on the control of reliable intervals developed by the student.

Based on the mathematical-statistical analysis, the results were obtained, which confirmed the effectiveness of the application of the improved methodological support of the discipline, the information and communication technologies used in the experimental group are high, the analysis of the results of the experimental work gives reason to popularize them throughout our republic.

v. CONCLUSION

The following conclusions on the application of the improved methodological support of the discipline information and communication technologies and electronic information and educational resources in the economic areas of higher education are presented:

1. An analysis of the current state of teaching the discipline of information and communication technologies in the economic areas of higher education has shown the insufficiency of the methodological support that meets modern requirements and the need to improve the methodological support of professionally oriented teaching of the discipline information and communication technologies.

2. The methodological support of professionally oriented teaching of the discipline "Information and Communication Technologies" in the economic areas of higher educational institutions has been improved using Microsoft Office programs: MS Excel, MS Access, programs aimed at the object: C ++ Builder, PHP My Admin, MySQL , Oracle, Cisco Packet Tracer, interactive Internet services: my.gov.uz, soliq.uz, my.soliq.uz, stat.uz, programs that automate the solution of economic issues: 1UZ, 1C, eStat 3.0., IABS-bank and other programs.

3. In order to teach students improved methodological support for professionally-oriented teaching of information and communication technologies in the electronic educational environment using the programs AutoPlay Media Studio 8, Macromedia Flash 8, Movavi Video Editor Plus, Bandicam, Audacity, an electronic information and educational resource was created and a methodology was developed use it in the educational process.

4. The use of improved methodological support and an electronic information and educational resource in the process of teaching information and communication technologies, taking into account the normative documents of the educational process, the level of knowledge and intellectual potential of students, served to increase prospective motivation, interest in mastering professional knowledge, opportunities for professional success, excellence, implementation their opportunities, saving time, as well as building student skills s in the design of their professional activities.

5. Based on the improved methodological support of professionally oriented teaching using the possibilities, methods and means of interactive training, a model has been developed for training future economists as professionally competent specialists.

6. Adequate criteria (reproductive, variative, creative) of adequate assessment were developed and put into practice that determine the effectiveness of teaching information and communication technologies using an electronic information and educational resource, the results of which were determined during the pedagogical experiment, and an increase in the level of assimilation (achievement) of students was achieved by 13 percent.

7. An electronic information and educational resource, teaching aids created to improve the methodological support of professionally oriented teaching of information and communication technologies in the economic areas of higher education can be used in teaching other disciplines, training economists, representatives of this industry in training centers.

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