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Theoretical Basis of Improving the Professional Competence of Future Teachers Using Geoinformation Systems

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Abstract – This article explores the knowledge and skills required to improve the skills of geography teachers today using geographic information systems. In addition, the article provides instructions for geography teachers on the use of information technology in teaching GIS. The article describes the problems of modern teaching of the course "Geographic Information Systems" and ways to solve them.

Key words: geographic information systems, data, information, knowledge, geoinformatics, decision making, geography, informatics, information technology, structure.

I. Introduction

Development of professional competence of students on a global scale is carried out on the basis of modern equipment and innovative technologies. Modern knowledge is of great importance in professional activity, personal experience and formation of a person as a well-rounded person throughout his life. In order to develop the professional competence of students, in order to acquire the necessary competence in fundamental natural sciences such as mathematics, physics, chemistry, biology, geography, innovative educational technologies, creative technologies and modern teaching methods. demands the need to improve the possibilities of geography education with the help of didactic tools.

As a result of fundamental reforms aimed at introducing an effective higher education system in our country, the organizational and pedagogical conditions and informational and methodological possibilities of training future geography teachers are being expanded. In particular, in the Action Strategy for the further development of the Republic of Uzbekistan, the priority task of "further improvement of the continuous education system, increasing the possibilities of quality education services, continuing the policy of training highly qualified personnel in accordance with the modern needs of the labor market" is defined. From this point of view, it is urgent to improve the current methodology of developing the professional competence of future geography teachers and educational and methodological support on the basis of modern approaches, as well as to develop mechanisms for objective evaluation of the learning results.

II. Literature review

The analysis of scientific research and literature on the problem of the research work shows that there are opportunities to increase the efficiency of the training processes of future geography teachers in higher education institutions, to

develop their professional competence based on modern approaches, which determines the relevance of the research topic.

It is necessary to study in detail the advanced aspects of the experience of the world tourism industry, the marketing research of consumer preferences, the results of practical activities on the formation of tourist products and their presentation. Tourism management organizations and tourism companies are constantly faced with the problem of mastering information technologies in their work. In researching the touristic potential of the region and developing and mastering their programs, experts come across a lot of information representing different aspects of the space. Geoinformation systems (GIS) are an irreplaceable tool for processing this type of information today. Today, tourism is considered to be a typical field in which geoinformation technologies are used. In our country, they are usually used for the preparation of tourist maps, booklets and other electronic printed products containing maps and schemes. Currently, for regions with a rich historical and cultural heritage and unique natural potential, it is necessary to take into account the natural and historical and cultural monuments of the area, tourism service enterprises and tourism destinations, analyze the flow of tourists, it is necessary to form a wide-profile practical geoinformation system that helps to plan the development and solve other tasks.

The science "Geoinformation system in tourism" covers a number of topical issues such as the stages of development of the geoinformation system, the issues of using GIS in modern conditions, the description and classification of the geoinformation system, the issues of effective use of GIS in tourism, the possibilities of websites and portals in tourism, regionalization of tourist potential. The purpose of the subject is to provide undergraduates with theoretical and practical knowledge on the effective use of the geoinformation system in the proper organization of management activities of tourist enterprises in the socio-economic sphere. The main tasks of the subject are to provide students with an understanding of the geo-information system, to collect information in tourism, to teach the evaluation of tourist resources and objects, to provide information on the formation of a regional geo-information system for the development of tourism potential in Uzbekistan, and the possibilities of effective use of the geo-information system in tourism. learning, passporting the field of tourism services, as well as providing students with an understanding of the main issues in creating tourist portals.

First, the literature, dissertations, monographs on the use of pedagogical and information and communication technologies in improving the teaching of natural sciences, general professional and specialized sciences, and increasing their effectiveness were analyzed and the necessary conclusions were drawn.

A.V. Shitov's training manual "Creating geoinformation systems in geography" (in Russian) is designed to improve the quality of training geography teachers for the continuous education system, and it is one of the modern literature prepared in this direction today. The study guide "Geography" was prepared on the basis of the state educational standards, and it contains the general issues of the teaching methodology of geography in higher education institutions, its subject and methods, content and tasks. illuminated. Also, issues of organization of educational work, strengthening of theoretical and methodical preparation of students in the course of general physics are described.

E. Y. Safarov, I.M. Musaev, H.A. Abdurahimov's textbook "Geoinformation system and technologies" of educational institutions "Geodesy, cartography and cadastre", "Land formation and land cadastre", "Ecology and environmental protection", "Water resources and their use", "Geography and hydrometeorology" or It is intended for students studying in the fields of Geoinformation, it describes in detail the ways to collect resources, create a database, and create thematic maps. Students of higher education, masters, graduate students, teachers and scientific workers conducting research on geoinformation systems can also benefit from the textbook. The textbook corresponds to the Geoinformation system and technologies curriculum, created for the training of specialists in Geodesy, cartography and cadastre, Ecology and environmental protection, Water resources and their use, Geography and Hydrometeorology.

A.A. Yusupova, S.R. Kamalova's "Evaluation of Qualifications and Competences" training manual showed methods of professional motivation and improvement of scientific qualifications of future teachers, as well as methods of increasing the competencies of young students and evaluating them. The manual is intended for students of higher educational institutions, research workers, graduate students and researchers, and mainly the main content, goals and tasks of evaluating the skills and competencies of employees, as well as their origin, are widely explained.

V.M. Karimova, F.A. Akramova, G.O. Ochilova, G.M. Musakhanova's teaching manuals on the subject "Pedagogy. Psychology" describe the basics of pedagogical and psychological knowledge, the information in which helps young people to know themselves and others, the secrets of dealing in different situations and groups, types of education and upbringing, laws, conditions of application of pedagogical and psychological technologies, factors of free, independent thinking, mental phenomena, information about their management in a way that knows the laws are given. Also, in the manual, the emergence of the science, its main fields and their characteristics, methodology and principles of psychology, activity, its structure, personality and its structure, forms of manifestation of the individual's psyche, psychological characteristics of the personality, abilities, temperament, character etc. are covered in detail.

A.O. Kuysinov's Doctor of Philosophy thesis on "Technologies of development of professional-pedagogical creativity of future teachers based on a competent approach", "Theory and methodology of independent 11 education organization in the training of vocational education teachers", "Theory and practice of developing the intellectual system of education", "Technology of formation of professional competence of vocational education teachers" monographs, "Electronic system for organization and management of qualified pedagogical practice in the formation of professional competence of vocational education teachers", electronic textbooks "Vocational pedagogy", "Methodology of vocational education", training manual "Vocational education Methodology course work", "Completing graduation qualification works", "Qualification pedagogic am methodical instructions on "organizing aliyot" were developed and put into practice, and based on a competent approach, a system of thematic creative exercises and problem-based video tasks aimed at developing the creative thinking of future vocational education teachers and preparing them for professional-pedagogical creativity was formed and an algorithm for solving them is recommended.

III. Analysis

Education, upbringing and teaching are the only tasks of pedagogical activity, and they create the basis for the teacher to be ready for social life. This is done by teaching him and mastering all the social experience by the teacher. The social significance of pedagogical activity consists in the processing and transfer of knowledge and skills of society and the organization of the pedagogical process.

In recent years, there have been significant changes in the content of the geography teacher's professional activity, as the requirements for professional skills and qualifications of specialists are growing in the new educational information environment. But there is no rapid development in education to improve the professional skills and quality of teachers.

However, it can be said that the topics are not yet connected to new information technologies, in particular geo-information technologies. There is a need for serious changes in the professional training of future geography teachers, in the direction of their methodological relations, and the issues of the mastered profession and the introduction of innovative educational technologies are not excluded. Based on the solution of such issues, it helps to improve the personality, professionalism and qualifications of future teachers.

The process of teaching geoinformation technologies in the university system is very promising. Currently, geoinformation technologies are entering almost all directions.

With the help of this technology, we can inventory, perform and display various objects and resources.

If we talk about the researches covering almost all modern aspects of geoinformatics and geoinformation technologies in Bukhara region, they are almost non-existent.

Using modern information technologies, the most complete integration educational model can be developed for the specialty "Geography" on ICT.

In the future, geography teachers should implement the following methods of using information systems based on GIS technologies:

Cartographic data;

Geographical data map;

Electronic maps and atlases;

Remote Sensing;

Geo-photo processing;

Geographical data exchange systems;

Systematic analysis of experimental studies for the use of geoinformation systems;

Modernization of geoinformation technologies and its cartographic subsystems and their use to obtain geographic information.

IV. Discussion

Today, the need for geoinformation systems in the earth and social sciences dealing with spatial data has increased. Some of the experts complained that the limited data lead to simplification of descriptions, speculative studies, their poor quality and other errors, while the rest, on the contrary, said that they did not have time to process a lot of data. Even when we have certain information, we may not always be able to manage and use it wisely. The ways and methods of presenting information about collected materials are becoming more complex, difficult to exchange and access - departmental and even personal barriers, restrictions and data breaches prevent the rational and effective use of information resources.

Ecologists, geographers, geologists, soil scientists and students of other fields of study learn not only about the earth, but also about society through the science of "Geographic Information Systems".

In such conditions, the role of informatics and related technologies has increased. At the same time, the main factor in the educational course is the acquisition of scientific knowledge, therefore, informatics has a subject-specific, integral character. To date, computer science is the first stage of development - study of computer systems, programming, algorithmization, etc. At present, informatics has moved to the next stage - synthesis (a method of studying the subject as a whole, a method of studying the unity and interconnection of its parts), which determines the trends of informatization of the main types of human activity, which in turn determines the worldview of society and affects his philosophical views. We can say that on the basis of a deep understanding of the nature of information processes, the formation of a general systemic and structural view of the world is continuing.

Informatics encourages the search for integral relationships, allows to formalize educational material using several common solution methods.

Informatics cannot be taught separately, it is not only mathematics, but also closely related to other academic subjects such as geography, biology, physics, etc., enriching them with content and effective research methods. must be mounted. Thus, purposeful attempts to understand the multi-functional meaning of informatics, to determine its real impact on educational processes, formation, knowledge and skills, allow to unite different fields of education.

The invention of new computers and software creates an opportunity not only to study individual academic subjects, but also to conduct interactive work with integral objects, in addition to studying the surrounding world and moving to the third stage, i.e. higher education. It created a great opportunity to move to such stages as informatization of the education system.

V. Conclusion

Modern education is oriented towards innovation and the readiness and ability to adapt to any positive changes occurring in the learner as a member of an innovative society, the desire for independent education throughout life, and the formation of skills. description was based.

The electronic educational resources created on the basis of information and communication technologies embody the foundations of an innovative information educational environment and create a basis for a fundamental change in the structure of informational interaction between teachers and students in higher education institutions.

The term "GIS" used in the practice of geography education envisages the formation of the learner's skills and competences in practical work with existing knowledge and by repeating actions that teach such skills and competences many times.

As a result of the analysis of scientific and pedagogical literature on the problems of professional training of future geography teachers, it has been shown that it is necessary to develop a specific technology for forming the knowledge of future geography teachers based on geo-information technologies. Our task is to form the information culture of geoinformation systems in future teachers of geography, which is required for their future professional activities. Modeling the information culture of the future teacher of geography, in particular its aspects, for example, the use of information culture modeling for geoinformation systems to determine the completeness of the information culture of students, the theoretical and practical aspects of teaching geography students in the field of geoinformatics and mathematics practical models, as well as the use of geoinformation systems in teaching geography in secondary and higher education.

In the geographic education system, future geography teachers must undergo significant changes designed to prepare professional geographers who are ready to solve issues related to the use of geoinformation technologies in their professional activities, which will lead to the development of geography students. requires comprehensive introduction of information and communication technologies to the system of professional training.

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