Journal of Contemporary Issues in Business and Government Vol. 27, No. 2, 2021
https://cibg.org.au/

P-ISSN: 2204-1990; E-ISSN: 1323-6903
DOI: 10.47750/cibg.2021.27.02.425

Improving the information culture of a future geography teacher based on geoinformation technologies

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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.

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

INTRODUCTION

In geosciences and societies dealing with spatial data, there is an interesting situation - information: "explosion" is adjacent to information "hunger". Some experts complain that limited data leads to simplification of these descriptions, tentative studies, their poor quality and other errors, while others say that they do not have time to process a lot of data. Even if we have certain information, we may not always be able to access and use it wisely anymore. Ways and means of providing information about the collected materials are becoming more complex, difficult to share and access - administrative and even personal barriers, restrictions and breaches of information hinder the rational and effective use of information resources.

LITERATURE REVIEW

At present, departments of geoinformatics have been opened in many universities of the country; ecologists, geographers; Geologists, soil scientists and other students study not only the earth, but also society through the course "Geographic Information Systems".

In this context, the role of informatics and related technologies has increased. The main factor in this course is the acquisition of scientific knowledge, so computer science has a subject-specific, integral character. To date, the first stage of development of computer science is the study of computer systems, programming, algorithms and so on. Nowadays, informatics has moved to the next stage - synthesis (a method of studying the subject as a whole, the method of studying the unity and interconnectedness of its parts), which determines the trends in informatization of the main types of human activity, which in turn influences his philosophical views. On the basis of a deep understanding of the nature of information processes, we can say that the formation of a general structural view of the world continues.

Informatics encourages the search for integral relationships, allowing the formalization of learning material using several common solution methods.

Informatics cannot be taught separately, it is inextricably linked not only with mathematics, but also with other disciplines (geography, biology, physics, etc.), enriching them with content and effective research methods. should provide. Thus, targeted attempts to understand the multifunctional meaning of informatics, to determine its real impact on learning processes, formation, knowledge, skills and abilities, allow to combine different areas of education.

The invention of new computers and software allows not only the study of individual subjects, but also interactive work with integral objects, as well as the study of the world around us and the transition to the third stage, ie higher education. provided a great opportunity to move to stages such as informatization of the education system.

The features of the current stage of development of higher education are related to the transition to practice: the implementation of the idea of a new paradigm of education, which depends on:

• creating a modern scientific picture of the world by harmonizing the relationship between man and nature;

• teaching people to develop in the flow of information, creating the necessary conditions for continuous development and self-development;

• create conditions for basic education, which will allow you to quickly move to the relevant areas of professional activity.

An open education system is based on a worldview, the specific features of which are: integrity, openness of the learning process, integration of different information.
According to K.G. Krechetnikov, “a high level of specific subject training of a modern specialist should take place against the background of his good knowledge of the general systemology of knowledge. This requires a radical change in the educational space and the "policy" of education in the context of the transition to a post-industrial society”.
At present, the higher education system does not provide sufficient breadth and depth of fundamental knowledge. The problem is that the future specialist must have the skills and professional mobility to respond quickly to the constant changes in practical and scientific activities, as well as in social life in general. This result can be achieved if the graduate of higher education can be provided by a common integrated methodology of professional activity. In other words, each cognitive and professional activity prepares the “technology” (methodology, basic concepts and rules) of a particular discipline as an expert who knows how to demand and use them in relation to others, as a means of problem solving.
A systematic integrated approach to the organization of the educational process creates an objective model of teaching, which in turn increases its effectiveness.
The information culture of the future geography teacher includes: development of methods of information systems, databases and digital cartographic data banks, implementation of geoinformation maps; creation of electronic maps and atlases and other cartographic works; use of geographic information systems for processing remote sensing data and other geographic images; joint use of geoinformation, telecommunication and multimedia technologies in the cartography of geographical research; experimental research on the use of geoinformation technologies for system analysis; management and modernization of geoinformation technologies and their cartographic subsystems.
There should be a separate standard for this, which should combine the very broad knowledge required for a future geography teacher.
The student should know the following basic principles of information theory:
• know the methods of analysis of information processes;
• Peculiarities of obtaining geo-information about nature, society and their interaction, the level of completeness and reliability of the obtained geo-information;
• basic concepts of computation, the subject and basic methods of geoinformatics;
• flow of information processes in geosystems, principles, operation of hardware and software in the information system;
• principles of description, construction and operation of geographic information systems and networks;
• information models of knowledge and methods of representation of knowledge in databases of geographic information systems;
• basic classes of geoinformation models and principles of construction of information processes;
• content and main tasks of new geoinformation technologies and methods of geoinformation mapping;
• programming elements using different algorithmic languages;
• capabilities and methods of computer graphics, basic tools for computer design and visualization of geographical images;
• principles, structure, means of organization of multimedia and computer graphics systems and their application in geoinformation map;
• models and structures of telecommunication networks, methods of evaluating their efficiency;
• Methods of management of geographic information systems, the basic principles of organizations - digital databases of different thematic and spatial coverage, methods of forming databases and knowledge bases, expert systems.
The field of knowledge of a future geography teacher includes the following methods and criteria for assessing the accuracy and reliability of geo-data, the suitability of different sources of information:
• methods and rules of protection of geoinformation and information security;
• Principles of ensuring safe living conditions in the development and use of geographic information systems.

ANALYSIS

A geography teacher must have experience in the use of ICT in mathematical and cartographic modeling of geosystems and in solving spatial and temporal problems in cartography and earth and social sciences. In addition, the specialist must be able to assess the information and economic indicators of the effectiveness of geographical data. Requirements for specific disciplines should apply to many geographic and cartographic tasks and technologies, protocols for graphical visualization of final data, real-time incoming geographic information processing, operational geoinformation maps, and more.
The huge growth of hardware, the emergence of new ICTs has led to significant changes in subject areas, the emergence of new sciences (land registration, environmental monitoring, remote sensing methods,

geoinformatics, etc.) and led to the wider application of new technologies to a variety of functions and needs. To do this, it is necessary to reconsider approaches to teaching and research in higher education.
Geographic information technology is widely used in solving scientific and practical problems, including planning and management at the city, regional and federal levels, comprehensive study of natural and economic potential within large regions, inventory of natural resources, highways and oil. pipe design, environmental monitoring, safety entity and so on. Experience allows us to increase the breadth and effectiveness of the use of geoinformation technologies in the professional activities of future geography teachers.
The increasing complexity of infrastructure requires more in-depth and thorough management of resources, methods of processing and analyzing spatial data, ways to solve management problems quickly, and evaluating and controlling changing processes. Geographic information technology provides new methods and data processing tools that provide a high visibility of non-uniform data representation, the power and convenience of truth analysis tools. Therefore - there is an opportunity to reach a qualitatively new level of education by reducing the gap between modern science and the content of education, primarily at the level of methods of learning. Finally, an important factor is the strategic importance of geoinformation technologies.
The main objectives of the introduction of geoinformation technologies in education are:
• acquaintance with information technology and its role in modern science, industry, culture;
• formation of a modern worldview based on a systematic, multidimensional perception of information using geoinformation technologies;
• teaching students computer modeling, a modern method of scientific knowledge;
• The main principles of the formation of students' scientific worldview, the introduction of methodology and geoinformation technologies in education, used by modern science and practice to demonstrate, study and change the surrounding reality;
• Priority of general cultural and humanitarian development in the development of new geoinformation technologies;
• Integrity: study of tools and methods of geoinformation technologies involving materials from various general education disciplines;
• multidisciplinary: the introduction of elements of geoinformatics and geoinformation systems and the use of its tools in other courses in computer science, geography, cartography, ecology, etc.
• Differentiation: instrumental support of geoinformation technologies in both basic and specialized training courses;
• activation of educational activities, development of students' research skills, intellectual abilities.

DISCUSSION

It is necessary to distinguish three types of geoinformation technologies in education:
1. Tasks for studying computer science:
• to acquaint students with the possibilities, scope and features of new geoinformation technology;
• Formation of the idea of generations of software and additional geoinformation technologies for spatially oriented data processing;
• to teach the basics of working with modern geoinformation technologies.
2. Tasks of teaching special subjects:
• Ensuring the development of modern methods of collecting, processing, storing, analyzing and extracting spatial information;
• Develop “decision-making” skills based on computer-assisted learning tasks and projects.
3. Tasks of geoinformation technologies in education management:
• information and analytical support of management (education at all levels - local, regional, federal);
• Spatial planning of educational institutions at different levels.
Geographic information technology can change the structure of teacher and student activities. For example, if traditional technology is used to teach geography (general geographic maps, geographic atlases, statistical tables, as a means of supporting and illustrating descriptive text), the goal of teaching is to teach the student a specific lesson. was to study the material (in the optimal case, the student will naturally master the connections between different geographical phenomena)) then in the use of geographical information technology in teaching, geography, mastering the means of detecting these constant connections is a priority turns out. That is, in the learning process, students access a tool for real-time experience analysis.
The scientific nature of this analysis is ultimately determined by the level of information completeness of the system and the level of formation of data analysis skills using the system, the level of technical and pedagogical application of geoinformation technologies in education. Effective results of student work should be educational projects aimed at solving real (economic, environmental, pedagogical, etc.) problems of individual regions. The practical side of development is determined by the importance of geoinformation technologies in the manual of a modern specialist, whether it is an employee of administrative bodies, land, environmental or financial organizations, commercial structures, military, research and educational institutions.

CONCLUSION

The need to use GIS technologies in the system of domestic geographical education is obvious. It is also obvious that GIS must be considered as one of the important innovative resources for the further development of the system of national geographical education. However, to realize this potential, certain organizational decisions of the Ministry of Education and Science of the Republic of Uzbekistan are required to optimize the transition from the activities of individual enthusiastic teachers to the targeted implementation of GIS technologies in the educational process of universities and schools. A reasonable standardization of all activities in the field of GIS education is needed: from the training of geography teachers to the introduction of technologies in school geographical education. The priority area of activity in the field of GIS education should be the development of educational and methodological support, the development of the structure and content of training of specialists - geography teachers in the field of GIS technology. The development of the structure of educational and methodological support should take into account the achievements of leading domestic pedagogical universities. It is advisable, in our opinion, to determine the leading GIS technology software on a competitive basis with the participation of geographers, teachers of pedagogical universities and geography teachers.

Further training of teachers can be carried out via the Internet, with the placement on the website of teaching materials and methods of their use for school education. The availability of materials on the Internet will significantly expand the number of trained geography teachers, compared with the traditional method of advanced training.

REFERENCES

1. Dissertation on the topic: «Improving the methodology for creating auto-navigation maps». S.V. Dubrovina. Moscow 2017
2. Krylov S.A. Creation of digital cartographic fundamentals of auto-navigation maps [Text] / Krylov SA, Dubrovina SV, Plotnikov IV // University proceedings “Geodesy and aerial photography”. - 2014.- No. 4. - S. 46-51.
3. Krylov S.A. Formation and editing of selection tables for cartographic objects when creating general geographical foundations on a scale smaller than 1: 200 000 [Text] / Krylov SA, Plotnikov IV // Interexpo Geo-Siberia. 2015. T. 1. No. 2. S. 33-36.
4. Kudryavtsev L.V. Classification of roads in a cartographic database // Journal "University News. Geodesy and aerial photography ", 2010, No. 6. P.78-81
5. Khazratov F., Juraev Kh. METHODS OF CREATION AND ORGANIZATION OF WORK, TECHNOLOGY FOR CREATING AUTO-NAVIGATION MAPS [Электронный ресурс]: URL: http://www.jcreview.com/?mno=9704
6. “Literary Psychology and Style”. International Journal of Recent Technology and Engineering. International Journal of Recent Technology and Engineering (IJRTE)ISSN: 2277-3878, Volume-8, Issue-3S, October 2019. ijrte@gmail.com
7. “Психология и символик а цвета”. Журнал научных публикаций аспирантов и докторантов. №4 (106), Апрель 2015 г. фактический: 420029, г. Казань, ул. Академика Кирпичникова, д. 25. E-mail: info@moluch.ru; http://www.moluch.ru
8. “Бухара –Жемчужина отечественной культуры”. Наука и мысль. №6-2014. System в свободном доступе по адресу: URL: http://wwenews.ru/ http://wwenews.esrae.ru
9. «Обрядная одежда узбекских женщин”. «Молодой ученый» №3 (137), январь 2017. mail: info@moluch.ru; http://www.moluch.ru
10. “История красивого письма” «Молодой ученый» №21 (125), ноябрь-1 2016 г. E-mail: info@moluch.ru; http://www.moluch.ru