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INNOVATIVE APPROACHES TO THE FORMATION OF CARTOGRAPHIC KNOWLEDGE IN STUDENTS AT GEOGRAPHY LESSONS IN A SPECIAL SCHOOL

ІНОВАЦІЙНІ ПІДХОДИ ДО ФОРМУВАННЯ КАРТОГРАФІЧНИХ ЗНАНЬ В УЧНІВ НА УРОКАХ ГЕОГРАФІЇ В СПЕЦІАЛЬНІЙ ШКОЛІ

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Abstract. *The article deals with the problem of formation in students with intellectual disabilities of cartographic knowledge at geography lessons. The sequence of formation in schoolchildren of the basic groups of techniques of educational work with a geographical map has been determined. Modern innovative approaches have been revealed, expanding the possibilities of enhancing the effectiveness of geographical knowledge acquisition by students with special educational needs on the basis of the map.*

Key words: *geographical map, students with intellectual disabilities, online learning tools.*

Introduction. School geography facilitates students' mental development through versatile thinking, because territories and individual components of nature are considered in complex with constant establishing of causal relationships between them. One of the most promising areas for achieving the educational goal of geographical education is stage-by-stage formation of both cartographic knowledge and students' competences.

In school geography, almost all components of geographical knowledge – concepts, causation, patterns, ideological ideas, factual knowledge, spatial representations provided to students, are cartographic and are formed largely based on the map. Cartographic support for the textual material is the main way of learning the real world. Geographic map has high didactic efficiency, ensuring formation in students of cartographic knowledge and skills to use independently cartographic material to obtain geographical information.

At geography lessons in special education institutions for children with intellectual disabilities, the map performs not only a didactic but also a corrective function. The result of the learning activity with a geographical map is not only mastering of cartographic knowledge and skills by students, but also correction of the deficiencies of their cognitive activity. Therefore, in the special methodology of geography, an important place is occupied by development and introduction of new versatile techniques and methods of work with the geographical map in the modern educational process.

The main text. Work with geographic map in special education institutions for children with intellectual disabilities begins in 6th grade when studying the

elementary course in physical geography. Firstly, the map is the object of study. Students get acquainted with the principles of drawing objects on a plan and map, form an elementary concept of scale, study conventional colors and signs of the physical map, that is, create an initial stock of ideas, without which full work with the map, and even elementary understanding of the depicted on it is impossible. In the future, the map becomes a means of consolidating geographical knowledge and a source of new information. Independent application of new knowledge based on map reading for students with intellectual disabilities is a difficult task. Achieving positive results is possible only through organization of consistent systematic work on the formation of methods of teaching students with a geographical map, provided by the curriculum in geography [2].

The scientific literature defines the systems of methods of work with the map at separate courses of geography, methodological approaches to the organization of work with cartographic manuals at different stages (grades) of teaching geography to students with intellectual disabilities (V. Vovk, T. Holovina, V. Hruzynska, S. Dubovskyi, I. Yeremenko, I. Kabelko, V. Lypa, L. Odynchenko, T. Porotska, T. Skyba, V. Siniov, et al.). It is proved that at geography lessons the following techniques of educational work can be formed for students with intellectual disabilities: basic (finding horizon sides on the map, determining distances on the map by means of scale, reading conventional symbols of the map); techniques of description of geographical objects (rivers, mountains, seas, lowlands, etc.); techniques of "map overlay" (a comprehensive characteristic of the object by the maps of different content). There is a close relationship between these groups of techniques and it is necessary to form them in a certain sequence, since the techniques of the first group are the basis for forming techniques for describing geographical objects, the techniques of "map overlay" can be considered as a description of geographical objects using maps of different content.

At geography lessons in a special school several tools and types of visualization at the same time are usually used. Defective thinking of students with intellectual disabilities, difficulty of perception, reproduction of images of previously perceived geographical objects, inability to transfer perception of planar images in space – all these require the use of visualization of different kinds.

To the benefits of introducing into the educational process of a special school of computer-aided teaching and related to it use of all kinds of interactive, audiovisual and on-screen teaching tools of geography we should refer versatile visualization of the educational material and high availability of its presentation. The process of acquiring geographical knowledge by students becomes more conscious, and hence motivated. The high motivation to adopt new teaching material makes the system of students' knowledge, skills and abilities stronger.

From our point of view, the demo capabilities of maps or map schemes provided through multimedia training are much higher than printed ones. Multimedia slide maps, created by the teacher with the help of the graphical Power Point toolkit and supplemented with illustrative materials, increase students' informativeness, expand unlimited possibilities of one of the basic didactic principles – clarity. At geography lessons, the teacher uses a variety of techniques aimed at realization of a specific

didactic and corrective-developmental task, while demonstrating a map-containing slide, taking into account the mental characteristics and cognitive abilities of the students. Let's consider some of them.

1. Zooming in or out of selected areas of the earth surface for more detailed consideration. For example, to look at the outlines of reservoirs, islands, continents; to show the location of a specific continent, natural zone on a hemisphere map or a map of natural areas.

2. Drawing the necessary inscriptions, symbols, puns. For example, to sign parts of the world: Europe and Asia; names of certain objects; add symbols, names and images of major cities of the natural zones, etc.

3. Comparison of maps or their fragments, overlay of maps (physical and economic; physical and maps of natural zones, etc.), which makes it easier to compare objects, establish causal relationships and patterns. For example, a map of Ukraine's natural zones is overlaid with a map of the country's administrative division, enabling students to determine which areas are located in the appropriate natural zone. A map of Ukraine's natural zones is overlaid with the physical map of Ukraine, and using the function "Set Transparent Color", the boundaries of a particular natural zone are highlighted, allowing students to determine the relief of a particular natural zone. At the consolidation stage, the map can be projected onto a marker board, students are encouraged to sign natural zones independently, then an electronic inscription is highlighted.

4. Supplementing of the geographical map with illustrations (animal images, landscape illustrations, etc.) or text material.

Computer-aided teaching makes it possible to use the Internet, which is nowadays the most powerful information resource in the educational process. For geography lessons, in particular, the Internet provides the opportunity to demonstrate any illustrative and didactic material, make a virtual trip to a selected geographical object, and route to it using electronic maps.

GoogleMaps is a combination of carefully designed and constantly updated complexes of physical, climatic and topographic maps. Added to this is a handy navigator, zoom and context menu that allows tracking, for example, weather changes in real time. This menu provides viewing and attachment to the map of labels, photos and videos that are intended to give users some idea of the selected geographical object. An important option of GoogleMaps technology is routing. For convenience, there are two address lines for specifying the starting point and destination of the route and possibility to view it taking into account the means of transportation. The tool GoogleMaps has three modes for viewing the route: for pedestrians, for drivers, and for those traveling by public transport. The navigator informs in detail about the sequence of movement, specifying the direction of travel, approximate objects, the number of meters that the person needs to go to the next point and the approximate time spent at each point of the route. In addition, you can view photos of route points. The latest GoogleMaps update is the ability to view waypoints in 3D.

The use of the Internet, in particular, GoogleMaps technology will allow students to consolidate basic mapping knowledge, develop the ability to work with a

set of maps, to understand deeper the nature of the previously studied geographical concepts (“scale”, “climate”, “relief”, “weather”, etc.).

A new type of interactive geography learning tools is interactive maps. There is a new opportunity to create and use map material when the map is modeled on interactive whiteboards directly at the lesson. Interactive maps are not only a modern learning tool, but also a tool for enhancing the cognitive activity of students with special educational needs. Interactive maps can be used at both traditional and innovative geography lessons.

Conclusions. Today, there is a diverse set of interactive learning tools in the educational space, the use of which in a special school at geography lessons can increase the efficiency of formation of cartographic knowledge and skills in students with intellectual disabilities. Integrating the mapping image with a variety of text, photo and video materials enhances clarity and informativeness of the maps, facilitates students’ acquisition of geographical knowledge on the basis of the map.

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366.

Анотація. *У статті розглянуто проблему формування в учнів із інтелектуальними порушеннями картографічних знань на уроках географії. Визначено послідовність формування у школярів основних груп прийомів навчальної роботи з географічною картою. Розкрито сучасні інноваційні підходи, що розширюють можливості підвищення ефективного засвоєння учнями з особливими освітніми потребами географічних знань на основі використання електронних та інтерактивних карт.*

Ключові слова: *географічна карта, учні із інтелектуальними порушеннями, інтерактивні засоби навчання.*

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