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FORMATION OF GEOGRAPHICAL CONCEPTS IN THE LESSONS OF THE INTEGRATED COURSE "LET'S LEARN ABOUT NATURE" IN 5TH GRADE

The article examines the process of forming geographical concepts that are learned by students while studying one of the integrated courses in the natural sciences. It was found that geographical concepts, which are the foundation of a person's understanding of the world, allow students to imagine various geographical phenomena and processes, analyze them, assess the impact of natural conditions on people's lives, navigate in space, and consciously relate to the environment. It was confirmed that the formation of geographical concepts is a key process that contributes to the establishment of intersubject connections, based on the creation of a system of various cognitive tasks for the application of these concepts. Problems associated with the difficulties of students' assimilation of geographical concepts were identified. The experience of scientists in the methodology of forming geographical concepts was analyzed, in particular, certain stages of the process of forming concepts. It was determined that the main task of the teacher in the process of forming concepts is to choose the optimal method. Some methodological approaches that were used during the formation of geographical concepts in the conducted study are described, in particular the use of information and communication technologies, which in the current conditions are an integral part of the educational process and can become an important component of the formation of geographical concepts in students. The results of the conducted ascertaining study are presented, which made it possible to establish the level of formation of a number of geographical concepts in fifth-graders, to identify those concepts that had a low level of formation. The results of the formative experiment proved that the application of the various methods and techniques used allowed students to improve their understanding and awareness of geographical concepts, activated the educational process, and stimulated students' interest in studying the integrated course.

Key words: *geographical concepts, integrated course, methodological approaches, level of formation of concepts.*

(статтю подано мовою оригіналу)

Formulation of the problem in general form. Changes in school science education are taking place in the context of implementing the Concept of a New Ukrainian School and the Law of Ukraine "On Education". The main provisions of these documents are to improve the quality of education in general and science in particular, as well as the idea of forming a competent personality capable of self-development and self-learning in the conditions of global changes and challenges.

This task of the modern Ukrainian school actualizes the problem of forming natural concepts in students – the basis of the system of scientific knowledge. In solving this problem, the leading role belongs to new and improved existing methods of forming geographical concepts.

Analysis of recent research and publications. The problem of concept formation has always attracted the attention of many prominent representatives of pedagogical science. Among them, one can note Ya. A. Comenius, Y. T. Pestalozzi, K. D. Ushinsky and V. O. Sukhomlynsky. This topical issue was also studied by A. V. Usova, G. E. Kovaleva, O. M. Varakuta, P. Ya. Galperin, V. V. Davydov, N. F. Talyzina, G. S. Kostyuk, L. Munich, T. V. Nazarenko, G. Sh. Uvarova and other scientists. All authors of model programs and textbooks of integrated courses for the 5th grade "Learning about Nature", "Environment", "Natural Sciences" (Korshevnyuk T. V., Yaroshenko O. G., Bida D. D., Gilberg T. G., Kolisnyk Ya. I., Shalamov R. V., Kaliberda M. S., Grigorovich O. V., Fitsaylo S. S., Bobkova O. S., Bilyk Zh. I., Zasekina T. M., Lashevska G. A., Yatsenko V. S.) worked on the problem of forming natural concepts. However, changes in approaches to learning in the 5th grade, by the requirements of the National School of Ukraine, changes in the forms of assessing students' academic achievements require improving the methodology for forming geographical concepts as a component of the integrated course "Learning about Nature".

The purpose of the article. Considering the above, the purpose of the article is to theoretically substantiate and experimentally confirm the methods and methodological techniques used in the study for the formation of geographical concepts in the integrated course «Learning about Nature», which ensure the completeness, purposefulness, and systematicity of the acquired theoretical and practical knowledge of 5th-grade students.

Presentation of the main material. During the perception of natural objects, both directly and indirectly, a variety of information is accumulated, such as terms, facts, and ideas. To understand the essence of this information, it is necessary to perceive geographical concepts meaningfully. During the study of the integrated course of the natural science branch in the 5th grade, students get acquainted with real life in their environment and the relationships between society and nature. The assimilation of geographical knowledge takes place in various forms: facts, ideas, concepts, patterns, and theories. In addition, general educational and local skills and abilities are formed, which allow students to consciously navigate the socio-economic, and socio-political events of their state and the world as a whole. It is worth noting that the study of the integrated course in the 5th grade is not limited only to the study of the system of geographical knowledge, since the latter have a much wider scope. It contributes to the development of student consciousness, and understanding of the relationships between nature and society, and forms the competencies necessary for a deeper understanding of the world around them. Thus, a geographical concept is a

generalized form of reflection of reality, the content of which is determined by the essential features of geographical objects, processes, and phenomena and the relationships between them [5, p. 121].

Geographical concepts are an important tool for students’ understanding of the world, allowing them to imagine and analyze geographical phenomena, distinguish between different regions and their features, and also assess the interaction between nature and society. In the process of studying geographical material, students master various concepts that contribute to the development of their abstract thinking, critical thinking, and skills in analyzing information. Such a cognitive process stimulates the intellectual development of students and contributes to the formation of competent, conscious, and active citizens who can consciously perceive and influence the geographical space that surrounds them.

We agree with the opinion of T. Nazarenko, that geographical concepts that are more abstract are more difficult for students to form due to their logical structure. This leads to difficulties for the teacher in explaining and forming them in students [7]. Such abstract geographical concepts can be difficult for students because they cannot be directly perceived through the senses. They are based on theoretical concepts and require abstract thinking and imagination. To improve the understanding of such concepts, teachers can use various methods that will help make them more accessible and understandable for students. For example, the use of practical examples, demonstrations, visualizations or interactive exercises can help students better understand these abstract concepts.

During the formation of concepts, certain problems may arise due to the fact that students sometimes find it difficult to operate with the concept when solving new tasks or when the concept is learned formally, rather than through an active process of meaningful cognition.

To avoid the above problems, the teacher should be guided by the methodology of forming geographical concepts, which involves a sequential set of stages in the course of a specially organized and holistic psychological and pedagogical process. Thus, O. Varakuta offers his methodology, which distinguishes the following stages of the process of forming a concept:

– motivational and content preparation for mastering a geographical concept;

– organization of sensory perception of objects and phenomena of the surrounding reality, on the basis of which the concept is formed;

– organization of mental activity aimed at determining the essential features of the concept;

– generalization, verbal definition of the essence of the concept and designation of it with an appropriate term;

– introduction of the formed concept into the system of geographical knowledge [2].

For example, the formation of a geographical concept, such as a «landscape plan», is impossible without work on the terrain, in particular, conducting its visual survey. Similarly, to understand the concepts of «weather» and «climate», it is necessary to systematically observe the temperature, precipitation, direction, and strength of the wind in the area where students live. The formation of the concept of «surface water» will also be more effective if students can directly visit a river and a lake during a field trip. According to the author, at each stage of learning it is necessary to intelligently combine various methods, such as explanatory-illustrative, motivational-reproductive, partially-search, problem-based, educational, and research, as well as other methods that contribute to better assimilation of the material.

At the initial stage of the formation of concepts, students have internal motives that are associated with short-term interest in concepts. To actively involve students in educational activities, they must understand why it is necessary to master these concepts, that is, the motive for their activity. Achieving these motives occurs through defining the goal. But goals without a motive are not able to mobilize educational activity, since «the motive creates a guideline for action, and the search and understanding of the goal ensures the real implementation of the action». To this end, external (social-personal) motives must be transformed into internal (educational-cognitive) by selecting specific objects that arouse interest due to their novelty, unusualness, and accessibility for perception. At this stage, supporting knowledge is revealed for the further formation of a new concept [1].

The formation of geographical concepts is a key process that contributes to the establishment of intersubject connections, based on the creation of a system of various cognitive tasks – reproductive, productive, problematic, and creative – for the application of these concepts. In addition to concepts, important components of theoretical knowledge of geographical science are cause-and-effect relationships and patterns. Thus, for students to master geographical cause-and-effect relationships as a type of theoretical knowledge, a specially organized educational and cognitive activity is necessary, during which they not only identify the causes that affect the state and dynamics of natural objects but also explain the action of these causes and determine the consequences to which this leads. Understanding cause-and-effect relationships in the environment contributes to the formation of the natural culture of schoolchildren and their intellectual development.

The main task of the teacher in the process of forming concepts is to choose the optimal method – inductive or deductive – for mastering the content of the concept. If during the analysis of the composition of the concept it is necessary to lead students to generalizations based on observations and the combination of specific data that reveal the composition of the concept, then preference is given to the inductive method – the transition from specific objects and phenomena to general concepts and generalized ideas about the given.

A significant part of the process of forming concepts inductively is determined by the implementation of the principle of local history teaching. This method contributes to the development of concepts about geographical

objects and phenomena, which can be realized not only through direct observation in nature, but also through active educational activities using appropriate educational tools. It is important to note that the inductive approach to the formation of concepts during this age period is more popular due to the predominance of concrete, figurative thinking of students [3, p. 89].

The deductive method is formed, as a rule, for abstract and theoretical concepts. The process of forming concepts using this approach requires students to have a deeper abstract activity, the ability to analyze and general education, as well as the ability to support their explanations with illustrative examples.

With any method of forming general concepts, the main emphasis is placed on the analysis of the definition of the concept. The definition reflects the most significant characteristics and features of objects and phenomena. A general concept is considered learned when a student knows its definition, understands the essence of this definition, has a specific idea of the studied object or phenomenon, and is able to independently use this concept to solve educational tasks.

In the conducted study, the following methodological approaches were used during the formation of geographical concepts:

1. Reproducing the idea of an object or phenomenon, taking into account the personal experience of students. For example, when forming the basic concept of «river», the teacher consistently asks questions that help students understand the components of this concept: the beginning and confluence of the river, the names of its parts, the area through which it flows. Students, together with the teacher, find answers to these questions, write down key concepts in their notebooks. After that, they independently formulate the concept of «river», compare their definitions with the text of the textbook or a dictionary of geographical terms.

2. Students look at the pictures from the textbook and fill in the diagram «River and its parts» in their notebooks. The teacher creates a blank diagram on the board. After students find definitions for concepts that reveal the basic concept, they formulate different options for defining this concept. Students compare their definitions with those given in the text of the textbook or a dictionary of geographical terms.

3. The teacher models a river on the board, a computer monitor, or using an interactive whiteboard. Step by step, the image of a river with its components is reproduced in front of the students. The next step is different options for students' cognitive activity using the model: transferring the model to a notebook, reproducing their own experience in accordance with the content of the model, searching for definitions for the selected concepts in the textbook, formulating the basic concept and comparing its definition with that given in the textbook or a dictionary of geographical concepts and terms [3, pp. 90–91].

The research also used information and communication technologies (ICT), which are now considered an integral part of the educational process by many scientists and practicing teachers and can become an important component of the formation of geographical concepts by 5th grade students. As the experiment showed, thanks to the use of ICT, students can actively interact with information, study geographical concepts using visualization tools, interactive maps, animation materials and virtual tours. This contributed to a better understanding and memorization of complex concepts, and also helped students see the relationships between geographical phenomena. During the research, various educational platforms were used, such as Kahoot!, Canva, LearningApps.org., Orbulus, web resources Google Earth and Google maps.

The conducted testing of 5th grade students, the questions for which were compiled in accordance with the current curriculum and formulated according to the textbook authored by T. V. Korshevnyuk, O. G. Yaroshenko [4; 6], made it possible to determine the level of formation of geographical concepts for each test participant. Topic 3 «Learning about the Earth and the Universe» was chosen for the study. The majority of students (60%) showed an average level of formation of geographical concepts. This indicates that a significant part of them has a fairly stable base on these issues, but still needs to deepen their knowledge and develop skills in this area. It is quite promising that 40% of students showed a high level of formation of geographical concepts. This category of students probably showed a special interest in studying the integrated course of the natural science educational branch «Learning about Nature», and their deep knowledge may indicate readiness for further research and development in this direction. It is important to emphasize that none of the students had a low level of formation of concepts in general. This may indicate that the educational program and teaching methodology were able to convey basic knowledge to all students, and they have a minimum level of understanding of basic geographical concepts.

But a study of the level of formation of individual geographical concepts showed that such concepts as «mountain rocks», «weather» and «surface waters» are formed at a low level – below 50%. In particular, the concept of "weather" is formed at the lowest level and is 20%. The situation is somewhat better with the concept of "mountain rocks", the level of formation of which was 30%. The best of the above concepts was formed by the concept of "surface waters" – 35%.

All other geographical concepts demonstrated a level of formation above 50%. This indicates that their understanding by students is at a high level, and we did not consider them for further research and development. The study confirmed the need to focus attention on the formation of specific geographical concepts that revealed a low level of formation, taking into account the results of the experiment. This approach allowed to effectively improve the process of studying the topic of the integrated course "Learning about Nature" chosen for the study and contributed to increasing the level of understanding of geographical concepts among students.

After the implementation of the specified methods, the diagnostics of the level of formation of geographical concepts was again carried out. Testing was carried out on the same questions. This allowed to conduct a comparative analysis of the results and determine the effectiveness of the applied methods in the formation of geographical concepts among students. The analysis showed a significant increase in the share of students with a high level of formation of geographical concepts, which was 55%. At the same time, the percentage of students with an average level of knowledge decreased, which was 45%. The decrease was 15%.

Regarding the level of formation of individual geographical concepts, the analysis of the results showed that such concepts as “mountain rocks”, “weather” and “surface waters”, which were previously characterized by the lowest degree of assimilation, were marked by a significant increase in significance for students. At the same time, the percentage of concepts that were not targeted by the methodology, but were interconnected and considered in one topic, increased. This indicates that innovative methods and virtual resources were successfully used in the learning process. Such a positive development indicates the effectiveness of the chosen methodology in improving students' understanding and awareness of geographical concepts, in particular the topic under study.

Conclusions. The formation of geographical concepts in students is a complex process that requires teachers to use a variety of pedagogical methods, take into account the individual characteristics of students and involve them in active educational and cognitive activities.

During the study, various methods and techniques for the formation of geographical concepts were used, in particular information and communication technologies (ICT). These innovative approaches activate the learning process and stimulate students' interest in studying an integrated course.

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Хлонь Н. В. Формування географічних понять на уроках інтегрованого курсу «Пізнаємо природу» в 5 класі

У статті розглядається процес формування географічних понять, які засвоюються учнями під час вивчення одного з інтегрованих курсів природничої освітньої галузі. З’ясовано, що географічні поняття, які є фундаментом розуміння людиною світу, дозволяють учням уявляти різноманітні географічні явища й процеси, аналізувати їх, здійснювати оцінку впливу природних умов на життя людей, орієнтуватися в просторі, свідомо ставитися до довкілля.

Підтверджено, що формування географічних понять є ключовим процесом, який сприяє встановленню міжпредметних зв'язків, ґрунтуючись на створенні системи різноманітних пізнавальних завдань – репродуктивних, проблемних та творчих – для застосування цих понять. Виявлено проблеми, пов'язані з труднощами засвоєння географічних понять учнями. Проаналізовано досвід науковців у методиці формування географічних понять, зокрема певні етапи процесу формування понять. Визначено, що головним завданням учителя в процесі формування понять є вибір оптимального методу для засвоєння змісту поняття. Схарактеризовано деякі методичні підходи, які застосовувалися під час формування географічних понять у проведеному дослідженні, зокрема застосування інформаційно-комунікаційних технологій, які в нинішніх умовах є невід'ємною частиною навчального процесу і можуть стати важливою складовою формування географічних понять в учнів. Наведено результати проведеного констатувального дослідження, яке дозволило встановити рівень сформованості низки географічних понять у п'ятикласників, виявити ті поняття, які мали низький рівень сформованості. Результати формувального експерименту довели, що застосування використаних різноманітних методів і прийомів дозволили покращити розуміння та усвідомлення учнями географічних понять, активізували навчальний процес та стимулювали інтерес учнів до вивчення інтегрованого курсу.

Ключові слова: *географічні поняття, інтегрований курс, методичні підходи, рівень сформованості понять.*