Modern Directions of the Content of Understanding the Understanding of Scientific Concepts in the Elementary Grades

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ABSTRACT

In this article, the stages of the formation of concepts in the school are presented in detail, the formation of which is divided into fourteen stages. There is also a scheme of the stages of formation of concepts that is considered the most convenient, and a sequence of its stages is cited.

Keywords: genetic, methodological, abstraction, classification, motivational, abstract, dizyunctive, construct, contemplative, emotional, didactic.

Giving a definition in a narrow sense is a statement that reveals the meaning of a concept, that is, it refers to the definition of a concept and is a set of necessary and sufficient conditions necessary to distinguish the class of objects. The process of constructing a concept goes as the search and systematization of all necessary conditions sufficient to define a class of required objects in one value.

There are several ways to describe concepts. The main of them: to describe through differences in the closest type and appearance, and to give a definition by specifying the method of organizing the subject - a genetic definition.

The main first way of describing begins with specifying a close type. The concept of a species is a broad concept to which the appearance of the concept being identified is "adapted". The next step focuses on differences in the appearance of the concept to be identified. Each species includes most of the blotches. To enter a clear definition of the concept, it is necessary to find the content of this species, such a specific, important sign, that the definition should differ from other species in the same aspects of this species, which is part of the species specified in it.

The second method is the genetic definition-such a definition indicates the origin of the subject of the concept being described, as well as the method of the subject being created at the same time [1].

At the same time, most researchers put forward the idea that appropriation is not a passive adaptation of an individual to life conditions and is copied from the historical experience of society. Mastering in itself reflects the result of individual's active activity, which gradually rotates and is directed towards the acquisition of methods developed by society in the world of objects, the means of individual's Private Activity [2]. In the process of formation of concepts, it is necessary to organize the activities of the research in students, that is, the emphasis on the search for content. It is worth noting that in many cases, in cooperation, communication, conversation and interaction with other people, the acquisition of life experience in students takes place. In addition, there is a change in the assimilation of scientific concepts, that is, as a result of educational and cognitive activity, in students and their development. In general, it can be said that change is the achievement of new abilities in a

child, that is, moving in a new state with scientific concepts, in new ways.

Analyzing various methodological manuals, we can say the following conclusions. In teaching methodology, special attention is always paid to the formation of concepts. The logical aspect of the content, size, classification of concepts into classes is covered in detail [2].

Answers to comprehensive questions about this problem, while the main focus is on the psychological aspect of the formation of concepts [3]

As practice shows, knowledge of important signs does not provide for the conscious use of them in suitable real situations. Hence, the formation of the concept is not only a process of separate formation of the world in the minds of readers, but also a system of concrete actions. Students gradually go through a series of stages and learn to distinguish important signs of objects as a result of their personal practical experience.

The above analysis provides the basis for our conclusion that expressing a definition of a concept does not provide for its conscious appropriation.

When we look at the process of formation of concepts from the point of view of didactics, the stages of formation of concepts are presented in detail.

The formation of concepts should begin with the organization of observation of individual objects and phenomena, the expansion of observations, the clarification of Common important signs of the subject and phenomena to be studied.

In the educational process, it is sometimes necessary to work with such concepts that in their formation it is impossible to directly rely on the experience of the student, visual images and the perception of the object by intuition, previously acquired knowledge.

The sequence of formation of concepts is determined by the structure of curricula, in which it should be taken into account that the movement of concepts from "abstract – to clarity, from generality - to individuality" [4].

The school describes the stages of concept formation in detail, the formation of which is divided into fourteen stages [5]:

1. Emotional-clear perception.
2. Determination of the class of generally important properties of the observed object.
3. Abstracting.
4. To give a definition of the concept.
5. Clarifying and strengthening important signs of understanding in memory.
6. Establishing the connection of this concept with other concepts.
7. Application of concepts in solving elementary issues with a teaching description.
8. Classification of concepts.
9. Application of concepts in solving issues in a creative description.
10. Enrich the concept.
11. To give a comprehensive, dual definition of the concept atrophy.
12. Reliance on this concept in mastering a new concept.
13. A new enrichment of the concept.
14. To establish new connections and relationships with other concepts of this concept.

Based on the stages of formation of this noted concept, a didactic model of the process of formation of scientific concepts has been compiled in accordance with the principles of gnoseology, dialectics, formal-logical theory of the concept and according to the requirements of didactics [4]. It pays special attention to the need to implement dialectical techniques in a strict sequence: moving from concrete-emotional to abstract→ moving from abstract to concrete-abstract based on the transition from concrete – emotional to abstract→ moving from abstract to concrete thinking → moving to a holistic whole. To put this model into practice, it will be necessary to clarify it, taking into account the conditions of each education and the content and essence of the subject.

There is also a scheme of the stages of formation of concepts that is considered the most convenient, and the sequence of its stages has the following appearance [6]:
1) motivational stage;
2) separation and synthesis of important properties of the concept;
3) to cite the definition of the concept;
4) understanding the content of a word in a description and mastering its logical

composition;

5) application of the concept;

6) establish a connection between the studied concept and other concepts.

The author has detailed methodical recommendations for each stage, methods for counteracting blocks of issues, and ways to systematize the concept under study.

It has been proven by psychologists that for the process of successful and effective formation of any concept, it is necessary to carry out the following: to clarify the concept, to conceptualize it and to produce results from the proof of belonging to the concept - to develop general educational actions. At the same time, all this also manifests itself as a means of forming a concept.

"When conceptualizing an object, it must first be determined whether or not the object in question belongs to the concept being shown" [4]. To do this, the presence of a system of properties in an object is checked and it is concluded that this object belongs or does not belong to the concept under consideration. The act of conceptualization consists of two parts - general logic and originality. General logic includes the composition of the signs of the concept - the general composition, which is determined by the conjunctive, dizyunctive and so on. Actions in the identification of subject signs, which allow us to draw conclusions about whether they belong to this concept or not, belong to the specificity [3].

All of the above combines these series of general principles in the development of the stage of formation of concepts:

1) from the observation of the movements of the subject, the formation of understanding begins;

2) based on the results obtained, they identify important and non-essential signs of the concept;

3) concepts are formed through differences in species and appearances close to themselves;

4) the mastery of the concept is highly dependent on the work carried out by the definition.

Their wide application in the educational process is conditioned by a number of factors.

These include:

- Clear separation of the signs that shape the concept;

- The fact that these signs can assimilate the content of the reader as an approximate basis of actions;

- On the one hand, the belonging of the object to the objects of this class is easily determined, and on the other hand, when performing tasks, these symptoms serve as the basis of the application of this concept.

The mentioned principles condition the sphere of application of this approach to the educational process. It can be successfully applied in the formulation of concepts that characterize the definition of species appearance.

Thus, students work with relational-concepts that are new to them, rather than working with object-concepts. All of the above relatively complicates the process of forming concepts in the upper classes.

At the stages of the formation of concepts, having agreed on the essence of concepts and the logical composition of definitions, the need arises to adapt them.

The question of the organization of the educational process in students of the upper class, when the concepts that are formulated in it are mastered, enters the life experience of the subject and remains part of the circle of personal content, always remains relevant.

It is desirable to use an activating approach in the formation of high-level abstract concepts. Corresponding to the activating approach, "definitions are included in the construction, in which the signs of distinguishing the concept are expressed separately. The construction itself has such an abstract description that the necessary condition for the subsequent use of such definitions in practice is to prove the existence of objects satisfying the properties of this construction" [7].

The activating approach in the formulation of concepts is in the following cases:

- applies to abstract concepts of higher order;

- serving as the basis of some new

theory;

- when the definition observes that it has complex logical structural signs;

- those specified in the definition have such signs that they can be implemented when using them for the familiar of an object belonging to this class. For example, by constructing suitable algorithms.

Special attention should be paid to the active use of intuitive imagery, which serves as a prototype of the source of understanding, reliance on the student's life experience, strengthening motivation, treating modeling as a scientific method in a revealing light, organizing exploratory and reflexive Activity [4].

Hence, the activating approach is an approach that shapes concepts that lead to a rigorous understanding, based on the student's life experience, that is, the use of associations, visions, intuitive solutions and conclusions.

We highlight the basic principles of the activating approach that shape concepts:

1. The need to master a new concept, determined on the basis of the organization of content, lies in many cases on the basis of motivation;

2. The definition of the concept and the explanation of the content of the introduced concept should be carried out together, since the uniqueness of a high-level abstract concept is that the essence of the content that makes it up from the definition is not clear, and additional work is required to determine it;

3. Conscious mastery of abstract concepts is achieved through their interpretation, interpretation;

4. Of particular importance in the process of forming concepts is the development of sign-symbolic activity, which, in principle, is aimed at Conscious assimilation of a new symbol;

5. A number of properties of the new concept are determined by the method of analogies, that is, by "similar" concepts. Activating the properties of a" similar " concept and using them in conscious assimilation of a new concept is a distinctive peculiarity of such an approach;

6.In the educational process, the practice of modeling is considered as a scientific method and is presented to students in a revealing form;

7.Much attention is paid to the organization of research and reflexive activities of students, since it provides the opportunity to transfer students from "passive" listeners to an active creator.

Thus, the above points allowed us to draw conclusions as follows: the implementation of an activating approach in the process of formation of concepts is directly related to the disclosure of the content of concepts in the process of their formation.

By identifying the basic principles of the process of forming concepts related to science in students, we highlight the stages of the process that are considered below.

As you know, looking at the process of forming concepts in the general case, it consists of the following stages from a didactic point of view:

1) activation of the student's life experience associated with mastering the concept;
2) motivation to master a new concept;
3) introduction of the definition;
4) mastering the definition;
5) establishing a link between the new concept being introduced and those previously mastered;
6) application of the concept within the subject (or theory) under study;
7) application of the concept in other subjects, objects, etc.

It is worth noting that we have given a general scheme of the process of forming concepts that are used in many cases of objects or relationships in the educational process. The implementation of an activating approach to the formation of high-level abstract concepts provides originality at each stage.

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