The Essence of Scientific Concepts and the Role of Students in the Process of Understanding Comprehension

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ABSTRACT

In this article, the problem of understanding the concept of content in primary school students is interpreted in its own way. The essence of scientific concepts is also highlighted in this process. The process of understanding students of educational texts is cited.

Keywords:	Operational, understanding, content, genetic, functional, aspect subjective, operational, inductive, abstract, deductive, semiotic, objective.

Revealing the subject aspect of the content in the process of studying concepts, students have the opportunity to match the abstract educational material with the (subjective) life experience in them.

Also, an etymological analysis of the concept makes it possible to determine its lexeme. In most cases, the main idea, essence lies in the lexical content of concepts. In turn, in the course of practice, it will be necessary to bring the definitions of terms in education into balance with words in a natural language that are in essence close to them.

It is known that most concepts are relative. They are united by one identity, that is, they acquire their own meaning by being closely connected to another object. The fact that the concept as an object does not overlap in essence and its importance in theory makes it relatively difficult for students to consciously master it. In natural language, this is manifested only in vocabulary rather than independent application of the corresponding lexeme to them, which is a syntactic identity. On the other hand, it is worth noting that for the purpose of shortening speech, not every word can be used, but is always meant.

And sometimes it is also useful to discuss word organizers in order to master concepts well. Some concepts are formed in a morphological-syntactic way, that is, in the lexeme, by moving from one part to another. In turn, the importance of the subject in interpreting the description as well as some actions in defining the abstract object changes while keeping it partially.

Thus, the content component of abstract concepts can be revealed with the help of a linguistic tool for the purpose of understanding the educational material, since the opportunity arises to use knowledge in the field of natural language to reveal the essence of the concepts to be studied.

As the main organizing part of the content, the concept of "private meaning" can be distinguished.

Let's look at the specific meaning in three aspects: structural, genetic and functional [1]. The structural aspect involves imagining the place of private meaning in the structure of activity, clarifies the definition of consciousness and personality, its relationship with other psychological organizers, as well as the concept in question. The genetic aspect covers the

disclosure of laws, evidence and meaning inducers, processes and mechanisms underlying its formation, development and transformation. The functional aspect, on the other hand, reflects perceptions of consciousness and activity, its effect on the course of activity, and the importance and role of meaning in the specificity of mental processes. Respectively, applying structural, genetic and functional meanings to educational methodology, structural meaning is determined at a high level in the process of imagining a goal, genetic meaning changes its appearance in the activity of an object in acquaintance with the history of the appearance and development of an object in science, functional meaning is manifested in combination with motive and advanced application.

Within the framework of the development of a teaching methodology aimed at increasing the level of understanding of the material studied by students, we also studied the positions of psychologists who note the beginning of activities in the process of acquiring awareness and meaning.

The concept of private content is complemented by the concept of "operational content" for Activity Theory, which is fundamentally important. Private content is based on the theoretical and practical fact that operational content develops using subsystems [3].

"The concept of "operational " content"... it is the point of unification of two fundamental descriptions of human activity – its predisposition and awareness... Operational content is a form of content regulation that acquires subject content when meaning connections are made in direct subject activities. This form is directly under the influence of private meaning..." [4]. The operational content of the problem state element in itself reflects the possibilities of changing the state.

Thus, with the help of the term" operational content", an individual reflecting specific phenomenon of the state element is determined, and it is objective, surpassing the totality of the significance of this element in general experience.

For a subject, the operational content of an element cannot be exactly matched by the private content of that element [5]. It is characterized by a high level of dynamism, that is, it can radically change in the process of completing the task.

Content is the result of the interaction of object, event and state. The system of meanings is subjective semantics [4].

In science, all objects are abstract, and they are often presented to students in sign-symbolic as well as graphic form, for this reason, in the learning process, students work not with exactly the object, but with its sign-symbolic presentation. From the essence of the educational process, it can be formed in the process of using concepts, when transferring from one form of information to another, that is, from a verbal form to a sign-symbolic form, from a graph to a verbal form. Thus, in practice, determining the semiotic aspect of the meaning of the concept promotes the development of sign-symbolic activity in the field of objects.

Based on the clarification of the content aspect of the concepts used in the educational process, we facilitate the conscious assimilation of the main idea of the essence of the material being studied by students.

In particular, we focus on the methodology of mastering concepts. It is no secret that any science consists of a system of concepts, for this reason, special attention is paid to the study of concepts, like other subjects. Looking at it in general, concepts belong to theoretical forms of thinking and are a rational leap of knowledge.

The essence of the concept. The concept has content and volume, with the help of which we represent General, important signs of an object, phenomena in objective realism. As you know, when it is called Perception, we understand that reality is directly emotionally reflected in the human mind. And when it is said to imagine, we understand that in our mind, that is, at this moment, we embody the image of an object or phenomenon that we do not perceive. As soon as the effect of the subject on the human sensory organs stops, perception disappears, and imagination remains. For example, we show The Cube and take it away. We know cubes of

different, different colors, but deviate from this and remember the general and important ones.

The concept abstracts on the basis of individual signs and individual aspects of perception and imagination, is the result of a huge amount of same-sex objects and generalized perception and imagination of phenomena. The concept is organized through analysis and logical methods such as synthesis, abstraction and generalization. A thought that can distinguish important signs of the subject is called a concept. Its signs, which are necessary and sufficient to distinguish objects belonging to a certain group from other objects, are called important signs of the concept. Each concept will contain content and volume.

The set of important signs of objects covered by the concept is called the composition of the concept. The set of objects to which the same concept belongs is called the volume of the concept. For example: the concept of" man". Composition: living being, creates weapons and tools of production, has the ability to think abstractly. There is the following relationship between the volume and the content of the concept: the larger the content of the concept, the smaller its volume. The reduction in the content of the concept leads to its expansion in size. This action is called a generalization of the concept. The expansion of the structure of a concept leads to a reduction in its volume, and it is called the delimitation of the concept.

At the same time, focusing on the methodology for introducing a new concept, two methods of introducing concepts are distinguished in the teaching methodology: concrete-inductive and abstract-deductive.

The procedure for the implementation of the exact-inductive method consists of:

1. The task is looked at and analyzed - analysis, comparison, abstraction, generalization,.... .

2. The general signs that characterize the concept are clarified.

3. The definition is formulated.

4. Further assimilation of the concept and its definition is carried out in the process of their implementation:

a) familiar to the concept.

b) construct (draw).

c) to put this definition into practice.

The order of application of the abstract-deductive method consists of:

1.A definition of understanding is given.

2. With the help of performing various exercises, understanding is strengthened.

In the formation of concepts, the implementation of recommendations developed from the disciplines of psychology-pedagogy will not be without benefit, for example, P.Y. Galperin's theory of step-by-step formation of mental actions constitutes the following steps:

Stage 1. From the concept being introduced, it is determined what the goal is, the goals are given.

Stage 2. Readers cite the definition based on the picture.

Stage 3. Readers bring the description out loud without relying on the picture.

Stage 4. The definition is spoken to itself in the form of external speech.

Stage 5. The definition is spoken in the form of self-internal speech.

Mastering the definition helps to analyze its logical composition. For this purpose, an uni algorithm is drawn up for familiarizing concepts.

In order to do this in the educational process, it is necessary to develop suitable content and tasks aimed at revealing the meaning of the concept to be mastered in one aspect or another.

So, if we take into account the fact that the concepts of" content "and" essence " are considered categories of semiotics, then the meaning is considered as the content of the marked content, in education it is directly related to the assimilation of the sign-symbolic system of the specific language of the subject.

Many psychologists and educators believe that education at the same time should be viewed as one of the main processes associated with the presentation of content.

The reflection of the category" content " in taking into account the subject-object relationship, the uniqueness of knowledge and increasing the level of understanding of it made it possible to determine the aspects of this

category. We consider that the following aspects apply to it:

- logical-semiotic: "content" is the content of sign expressions;

- structural-subject:" content " – the systematic relationship of elements in the composition. Understanding the content associated with the definition of the main idea of the concept and determining the important meaningful connection between them;

- person, reflecting the established subjectivity between objects and phenomena, surrounding people in space and time, in particular, "private content".

The definition of the content of the new concept in the context takes place in several stages. We will note these stages and reveal their summary and understanding in the example of introduction.

1. The term introduced concept is associated with the expression of the essence of the phenomenon through this concept (the content of the concept is its action in analogy and logical-semiotic aspect).

2. Separation of the descriptive content of the concept and its separation from other studied phenomenon properties – often in the visual or verbal form of imagination.

3. Establishing the substantive relationship of the concept studied with the previously mastered material – the concept is a structural-subject aspect of the content.

4. Mark formalization of defined content links – the logical-semiotic aspect of the content of the concept and the form of actions as an element of sign-symbolic activity.

5. Finding a possible interpretation of the content of the concept based on its context.

Content as a phenomenon, necessarily connected with the activity of thinking, it can be expressed through various means in human management. Also, human thought cannot be distinguished from its cognitive activity, with the help of which the subject, as a result of interaction with the object, reveals some previously unknown parties, properties, acquires new knowledge about it.

Let's look at how the content of concepts is determined in the educational process using different aspects, as well as the interactions in

achieving understanding and the development of students ' thinking, clarify the level of development, the interaction between empirical and theoretical thinking.

Currently, the problem of developing theoretical thinking of Primary School students is very relevant, and it is conditioned by qualitative changes in society, which, in turn, requires the development of creative thinking, the preparation of people with research skills for society, of course, one of the main tools in the training of such people is the system of Exact Sciences.

To increase the level of understanding of the educational material, it is carried out to find important signs and links of the subject or phenomenon under study, distinguish them from non-essential, random sets based on the application of the rules of analysis, synthesis, logical inference, clarify similar and differences, reasons that influenced the emergence and development of these objects, compare the information obtained with All of the above are intellectual actions of theoretical thinking that lie on the basis of understanding: the action of analysis provides the opportunity to find important signs and links, with the help of planning, various important correlations are identified, and reflection gives the opportunity to summarize the results obtained, to include them in the framework of private content. If the student is able to successfully apply these actions, then he has the ability to comprehend the educational material, he is considered unable to comprehend it if he cannot apply it. Thus, the problem of developing the theoretical thinking of students rises as a prerequisite for achieving the level of understanding in the educational process to the fore. It follows from the essence of our research that the realization of understanding belongs not to the empirical level of studying realism, but to the theoretical level.

Based on the above points, we can draw the following conclusions:

1. In the analysis of psychological-pedagogical literature, the content is interpreted as the relationship between the subject and the object.

2. Specific content is viewed in three

aspects: structural, genetic, and functional.

3. The analysis of the psychological literature made it possible to identify the main components of theoretical thinking, from a point of view of the content - analysis, planning, reflection.

4. In the study, increasing the level of understanding of students 'understanding of the material being studied is achieved with the help of revealing the content of the concept being mastered in different aspects and through the development of students' theoretical thinking.

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