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STUDY OF INDUCTION AND DEDUCTION ISSUES BY PSYCHOLOGISTS

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ABSTRACT

In the article, the role of induction and deduction in the education of today's youth, the question of the role of thinking methods in knowledge, the fact that the problems of thinking have been out of the view of psychologists for a long time due to their complexity and the main reasons for this, the importance of the fact that philosophers and logicians think about the issue, the role of induction and deduction in the thinking process and the known Issues such as the emergence and solution of a problem, a problem, a puzzle are covered.

KEYWORDS

Thinking, induction, deduction, human, consciousness, cognition, object, abstract, Psychology, physiology, experiment, speech, idealization.

Introduction

It is known that Scientific schools are a group of professionals and scientists formed as a result of studying the direction of scientific activity of a certain person, a scientist, in which activities are carried out in harmony within the framework of a certain scientific idea and theory. On the part of scientists, Scientific schools ensure succession in the development of science, that is, they manifest systematic development in science. ИParadigmatic and local levels of scientific schools differ. If the scientific schools of I. Newton, A. Einstein, N. Bohr, I. Prigozhin show the paradigmatic level, the scientific schools operating in the country, individual higher education institutions or scientific research institutes reflect the local level. The paradigmatic level of the scientific school, in turn, constitutes a set of local level scientific schools with their own leaders. Academic schools may have one or more leaders. In the scientific school, specific scientific innovative mechanisms are used, their emergence is always formed in the struggle with opponents who put forward the opposite idea to the implementation of new ideas. According to some scientists, new ideas are more practical than old ideas, and the protection of the representatives of the scientific school is the guarantee of its implementation. In a scientific school, the teacher's leadership skills, scientific potential, and scientific responsibility are important. Scientific schools are manifested in the form of a set of scientific ideas aimed at the development of theoretical concepts. Scientific schools differ in the scale and importance of the ideas advanced. A characteristic feature of scientific schools is the ability to generalize ideas. A method of conducting individual scientific research is formed in scientific schools. When we analyze the problems of induction and deduction, it is known that this is a way of thinking. Thought is a generalized indirect reflection of existence. Therefore, the first important sign of thinking is

generalization. As a result of thinking, a person acquires such information that this information consists of a large amount of processed data from various objects and a summary of the most important properties of these objects in a short "condensed" form. Thinking creates an ideal image of them in the form of a subjective psychic phenomenon unique to a person.

TThe second important feature of thinking is the indirect reflection of existence. This means that thinking allows the analyzers to identify and understand things that do not directly affect them and can only be understood through indirect signs.

Thinking is a form of generalized and abstracted reflection, which ensures the presence of complex, comprehensive connections between things and events, which are considered objects of knowledge of the human mind. The problems of thinking have long eluded the attention of psychologists in their complexity, it was considered a matter for philosophers and logicians to think about. The German scientist Wilhelm Wundt, who is considered the father of psychological science, also divided psychology into two parts - physiological psychology (a science that studies the processes of cognition experimentally) and the psychology of peoples. He considered it only. These conclusions actually indicate the complex nature of thinking and thought processes. But even so, it is worth noting:

- firstly, thinking and thinking processes are cognitive processes;
- secondly, they are also a form of reflection of existence by a person, a form of generalization and indirect reflection;
- thirdly, these processes are also studied by experimental psychology;
- fourthly, thinking is the highest and highest form of knowledge.

The organ that allows us to think is our brain. All calculations, from planning the most basic actions to proving complex abstract theorems, take place in the brain. That's why when you are very tired, if you ask a person to express his opinion on a more difficult issue, he will answer: "I have a headache now, I am very tired, come to myself for a while, and then we will think about it." So, brain activity and thinking activity are inextricably linked. The thinking ability and capabilities of our brain are so important that some scientists believe that the laws of its operation are not the computers we use now, but are close to the operation of complex, extremely "intelligent" computers that will appear in 100-200 years.

All thoughts that occur to us are thoughts. It is impossible to imagine a normal person without thoughts, every moment, every minute, the human brain is busy with some thoughts. Sorting them out, focusing on them, solving them through internal or external speech is a process of thinking.

The thinking process actually appears when you need to solve a certain issue, problem, or puzzle. Thinking must always give several solutions about something, if the solutions are too many, it can turn into another process - imagination, fantasy. In the absence of a thought, idea, or clear solution, the human brain's reflection of the essence of things and events in existence is called imagination, etc. That's why, when there is an argument about a problem in the circle of friends, they look at the child who says something that comes to his head due to lack of clear knowledge or idea and say, "You're so good at running away, but you're a dreamer."

A set of knowledge acquired through logical observation, they are the following: analysis - separating the object into its components in practice or thought;

synthesis - to reassemble the whole from the parts in the same way. As a result of synthesis, a completely new object is created.

In the process of analysis (the activity of analysis), thought moves from complexity to simplicity, from coincidence to necessity, from diversity to specificity and unity. The purpose of analysis is to know the

parts as elements of a complex whole and to determine the relations and laws between them. However, the analysis leads to a separation of the essence, so that the unity that remains in the abstract is not yet revealed as a unity in diversity. Synthesis, on the other hand, consists of the process of uniting the parts, properties, and relationships separated by means of analysis into a single whole. Synthesis is directed from unity to difference and diversity, and unites commonality and individuality, unity and diversity into a certain living whole. Analysis and synthesis are closely related.

Abstraction is the process of thinking away from several properties and proportions of the phenomenon under study, at the same time separating the properties (first of all, important, general properties) that are of interest to the researcher. Various "abstract objects" are obtained as a result of this process. In this case, "abstract subjects" mean separate concepts and categories ("development", "contradiction", "thinking", etc.) and their systems. Mathematics, logic, dialectics and philosophy are the most developed systems.

Determining which of the properties under consideration are important and which are secondary is the main problem of abstraction. This issue is solved in each specific case, first of all, depending on the nature of the studied subject, as well as specific tasks of the research.

Generalization is the process of determining general properties and characteristics of the subject, which is closely related to abstraction. In this case, any general (abstract-general) or important (specific general, law) signs can be distinguished.

Idealization is a concept that represents the mental formation of concepts of objects that cannot be realized in practice in principle, but are their representatives in the real world ("point", "ideal gas", "absolute black body", etc.).

Idealized objects, ultimately, appear as objective objects, reflections of real processes and events. Concepts formed with the help of idealization can later be used as a reflection of a real object in conducting research, reasoning, and creating abstract schemes of real processes.

Idealization can be scientific or non-scientific, real or abstract. The distinguishing feature of scientific, real idealization from abstract idealization is that the objects of idealization created in it, individuals are idealized under certain conditions, that is, can be interpreted using the terms of real objects.

Induction-thinking from particular (experience, evidence) to general (summarizing them and making a conclusion); the rise of the deduction-cognition process from the general to the individual. Induction and deduction are interconnected and complement each other. Since experience is always infinite and imperfect, inductive conclusions are always problematic (probabilistic). Inductive generalizations are generally considered empirically known truths (empirical laws).

Among the types of inductive generalization, mass induction, incomplete induction, complete induction, scientific induction and mathematical induction are distinguished. In logic, there are inductive methods of determining causal relationships - the laws of induction (Bacon-Mill rules of inductive research). These include unique similarity, unique difference, similarity and difference, dependent variable methods, and method of residuals.

The peculiarity of deduction is that the researcher creates specific knowledge about each of them from the general knowledge about a class, a genus, a group of things or events by means of deduction. It is known from human cognitive experience that if a property is common to all things or phenomena of a category or genus, then this property is also characteristic of every thing or phenomenon belonging to that category or genus.

deductive method - implies the creation of a system of hypotheses that are deductively related to each other. Conclusions about empirical evidence are ultimately drawn from these hypotheses. This method is based on drawing conclusions (deduction) from hypotheses and other hypotheses whose true meaning is unknown. Consequently, the conclusion drawn using this method will inevitably have a probabilistic character.

The general structure of the hypothetico-deductive method:

- getting acquainted with the material that requires theoretical explanation and trying to explain it using existing theories and laws. If this is not possible:
- to make assumptions (hypotheses, guesses) about the causes and laws of these events using various logical methods;
- to evaluate the validity and seriousness of hypotheses and to choose the closest to the truth among them;
- drawing conclusions from the hypothesis (usually by deduction) and clarifying its content;
- experimental verification of the consequences derived from the hypothesis. Here, the hypothesis is either experimentally proven or disproved. But the fact that some consequences have been proven does not guarantee the validity (or falsity) of the hypothesis. Based on the results of the investigation, the best hypothesis becomes a theory.

The movement of knowledge from the specific to the abstract means the movement from the particular to the general. Logical methods such as analysis and induction lead hereElevation from abstract to concrete feeling is a process of movement from some general abstractions to their unity, to a particular general. Here the methods of synthesis and deduction lead. Such a movement of knowledge is not a formal, technical procedure, but a dialectical conflicting movement that reflects the contradiction in the development of the subject, its transition from one level to another in accordance with internal contradictions. According to psychologists, when solving any problem, a person can only imagine its conditions in several options. coming If we connect with perception, the figure becomes the background, and the background becomes the figure, their places change, and so on. The individual difference is that some children come to a solution directly on the basis of a figure, while others come to a decision after considering several options. Someone thinks very quickly, someone very slowly. That is why two children sitting next to each other in the process of solving the test will determine the same solution, but the ways of arriving at that solution will be unique for each of them. The psychology of induction and deduction, which is a method of thinking, studies exactly how this process takes place. The solution to the problem sometimes appears suddenly, shining like a bright star. Such a psychological state is called insight in psychology. A person does not even know when clarity and insight appeared in such thoughts. It is surprising that even the most talented and intelligent scientists paid attention to the laws of their thinking and could not find an answer to when and in what way a new idea appeared. Therefore, this issue is a problem that should be studied even today.

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