

IMPORTANCE OF SCIENCE FOR PEDAGOGY

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Abstract. *The work deals with theoretical approaches to the system of memorizing educational information and modernization of teaching methods in modern education. The specific features for perception of information, presented by means of various ways, are studied. On the basis of the analysis, solutions were identified that will help improve the quality of students' learning material mastering.*

The article reveals the usage of information from different scientific fields. It covers the notion of memory and its different types. Different aspects for memorizing and mastering new knowledge more efficiently are distinguished.

Keywords: *teaching methods, memory, didactics, learning process, information perception.*

Introduction and problem statement

Due to the transition of humanity to a new post-industrial era of its existence, over the next few decades, education is likely to change more than in all three hundred years that have passed since the emergence of modern school printing. The transition from one society, industrial, to another, post-industrial, is accompanied by radical changes in education.

Most of the occupations that existed before no longer exist. But every year new directions of society development appear where a new highly educated class, such as intellectuals, serves. But the problem is that the methods used by teachers in training do not give the same result as before.

In the wake of life change, people also develop: the way of living, information perception, communication skills, etc. And this must be taken into account while training specialists.

There are the following main methods and approaches in pedagogy: system, personal, cultural, activity, ethnoeducational, polysubjective, anthropological [1].

The purpose of research is to analyze the process of information perception and knowledge mastering using different methods and techniques. To achieve this goal, the following tasks were set: to study different memorization mechanisms; to identify modern teaching methods.

Methodological part

We will consider the anthropological approach as a systematic use of information from different scientific fields about a person within this framework when applying the pedagogical process [2]. There are many different classifications of channels for new information perception by people. Someone perceives more easily information presented using pictures, diagrams, drawings. Some people better cope with information that is transmitted orally. It is easier for someone to study in the morning, for others in the evening. But we all have similarities in the very mechanism of memorization. At this stage, it is necessary to turn to such a science as biology.

To begin with, it is worth mentioning that there is no specific part of the brain that is responsible for a separate function, all systems work together.

The structure of the human brain is very complex, because in order to superficially understand what makes us remember information, we will consider only such components:

temporal lobe parts, hippocampus, entorhinal cortex, paranasal and parahippocampus cortices. The temporal lobe occupies the inferolateral parts of the hemisphere [3]. The hippocampus is a part of the brain limbic system (olfactory part). It engages in the mechanisms of emotion formation, memory consolidation (transition of short-term memory to long-term memory) [4]. The entorhinal cortex is a part of the cerebral cortex located in the temporal lobe and belongs to the hippocampus formation. The paranasal cortex receives sensory information. The parahippocampus cortex carries information between the hippocampus and the rest of the brain [5].

These parts of the brain are important for declarative memory. This kind is a fundamental form of memory. Declarative memory includes life experience and knowledge of facts. In order for a new declarative memory to form, key areas of the temporal lobe must work. These areas are also needed in cases where a new memory is repeated and may be associated with other information. So it gradually turns into a long-term memory.

From this, four aspects can be distinguished that will help us memorize and acquire new knowledge more efficiently and quickly:

1. Repetition. The more times we recall a memory, the stronger it becomes. Repetition involves neural networks that belong to the attention system. In other words, we tend to remember what we paid attention to.

2. Associations. If we need to remember something new, we need to relate it to well-known facts or build a system of associations. The more associations a memory has, the stronger it is. The point is that associations allow you to retrieve this memory in many ways: if one of them does not work, others will help.

3. Emotional resonance. The amygdala, a structure necessary for processing emotions [6], is capable of forming long-lasting memories through the hippocampus. Once upon a time, tens of thousands of years ago, this structure automatically signaled a person about the state of the environment, about its usefulness or danger. This makes emotional memories stronger than others.

4. Novelty. The brain is designed to focus attention on novelty. As a rule really unusual events remain in the memory for a very long time.

Results and discussion

Explaining new material is the most important structural element of the lesson. The quality of its mastering depends on how the educational material is presented. First, it is designed for revealing the essential features of the phenomena under study. Secondly, for teaching students to put into practice the knowledge gained.

Besides it should be noted here that motivation plays an important role in learning and knowledge mastering. This is the main driving force that ensures the student's involvement in the class work. Motivation is characterized, above all, by students' interest in the subject being taught and their desire and willingness to study it. Interest contributes to concentration, enhances the impressions received during the lesson, and stimulates the review of the material studied. In addition, motivation enriches students' extra-linguistic knowledge, thereby contributing to the formation of their overall competence.

A special place is occupied by the study of academic motivation, which is defined as a private type of motivation that is included in the educational activity. [7, p.152]

So, in modern didactics, such methods are distinguished:

- verbal (the source is the spoken or printed word);
- visual (the source of knowledge is objects, phenomena observed);
- practical (students gain knowledge, develop skills and abilities by performing practical actions);
- problem-based learning [8].

Verbal methods are central to the system of teaching methods. These methods include a story, explanation, conversation, discussion and lecture.

Visual teaching methods include those in which the assimilation of educational material is in significant dependence on the visual aids, diagrams, tables, figures, models, instruments and technical means used in the learning process. Typically, these methods are used in combination with verbal. They involve visual and sensory acquaintance of students with objects, phenomena, processes.

With the help of visual teaching methods, we can demonstrate and illustrate information. Demonstration serves mainly to reveal the studied phenomena dynamics, but is also used to familiarize oneself with the external appearance of an object or its internal structure.

Illustration involves showing objects, processes and phenomena in their symbolic representation using posters, maps, photographs, drawings, diagrams, flat models, etc. Recently, the practice of visualization has been enriched by a number of new tools (multicoloured cards with plastic cover, albums, atlases, etc.).

Practical teaching methods are based on the practical activities of the students. Their main purpose is the formation of practical skills and abilities. These methods include exercises, laboratory and practical work.

And the last method we will look at is the problem-based learning method. It is transitional kind from performing to creative activities.

The essence of this method is that a teacher sets a problem (that is, a problem that needs to be solved) and solves it himself, thereby showing the train of thought in the process of cognition. Students not only perceive, realize and memorize ready-made knowledge, conclusions, but also follow the logic of evidence, the movement of a teacher's thought. Also, this method can be used in the opposite direction: a teacher sets the task (problem) to a student, which needs to be solved. A student, using information search, facts, solution strategies and thus learns to solve problems.

Conclusions

Having considered the learning process from the point of view of science, and having familiarized ourselves with the teaching methods that are used in modern pedagogy, we can draw the following conclusions.

In the process of familiarization or revising of what has been studied, the available teaching aids are used, which serve either as the main source of knowledge (textbook), material for observation (figures, tables, audio manuals, etc.), or as a means of systematizing the studied material (tables). Graphic designations are of great importance for understanding the peculiarities of the studied phenomena. They fix the students' attention on essential features.

Also, when applying the verbal teaching method, it is necessary to use associations, because, by linking new material with already known facts, our brain absorbs and produces the material better.

The visual method provides emotional resonance by showing patterns, drawings, combining colours that evoke certain emotions, etc. If this is a demonstration, then it takes place with the help of dynamics.

The practical method allows us to revise previously learned information. Thus, applying it in practice, we pay attention to the primary and secondary facts. And we tend to remember what we paid attention to.

The problem-based learning method helps us to focus on novelty. In the process of searching for a solution, students find previously unknown facts, techniques, methods, classifications, etc.

Summing up the above and taking into account the scientific research we can state that, the learning process can take less time, be less labour-intensive, and at the same time be of higher quality and more successful.

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