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## Cognitivism and Behaviorism in Education

### Abstract

The article provides a comparative analysis of two key concepts: behaviorism and cognitivism within modern pedagogical and psychological activities. The research aims to determine the functioning and influence of these approaches on the effectiveness of learning activities and educational strategies. The concept of behaviorism examines the role of stimuli, reactions, and reinforcement, where learning is interpreted as an external change in the subject's behavior. Behaviorism allows for the easy measurement of student success, the effectiveness of skill formation, repetition, and consolidation. The downside is the lack of consideration for internal thoughts, motivation, and understanding, focusing strictly on outward behavior. Within the framework of cognitivism, attention is directed toward the individual's thought process, memory structures, and the mechanisms of perception, processing, and storage of information. Cognitivism promotes the development of thinking, adaptability, and the formation of skills and abilities. This concept poses difficulties in evaluating results, which are conducted based on qualitative and quantitative analysis. This paper examines the integration of elements from both concepts into the modern educational process. It is stated that the effective organization of learning involves the formation of certain behavioral reactions, the development of cognitive activity, critical and logical thinking, and independent operational skills.

Consequently, the synthesis of behaviorist and cognitive learning strategies contributes to increasing the efficiency and productivity of the educational process and the development of the student's personal and individual qualities.

**Keywords:** *cognitivism, behaviorism, thinking, skill, memory, ability, analysis*

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## Təhsildə koqnitivizm və biheviörizm

### Xülasə

Məqalədə müasir pedaqoji və psixoloji fəaliyyətin iki əsas konsepsiyasının — biheviörizm və koqnitivizmin müqayisəli təhlili aparılır. Tədqiqatın məqsədi bu yanaşmaların fəaliyyətini və təlim fəaliyyətinin effektivliyinə, habelə təhsil strategiyasına təsirini müəyyən etməkdir. Biheviörizm konsepsiyası stimullar, reaksiyalar və möhkəmləndirmənin rolunu nəzərdən keçirir, burada təlim subyektin davranışındakı xarici dəyişiklik kimi şərh olunur. Biheviörizm şagirdin müvəffəqiyyətini, vərdişlərin formalaşma effektivliyini, təkrar və möhkəmləndirməni asanlıqla ölçməyə imkan verir. Mənfi tərəfi isə daxili düşüncələrin, motivasiyanın və dərkətmənin nəzərə alınmaması, yalnız xarici davranışa fokuslanmasıdır. Koqnitivizm çərçivəsində diqqət fərdin düşüncə prosesinə, yaddaş strukturlarına, informasiyanın qəbulu, emalı və yadda saxlanması mexanizmlərinə yönəldilir.

Koqnitivizm təfəkkürün inkişafına, adaptasiya qabiliyyətinə, həmçinin bacarıq və vərdişlərin formalaşmasına kömək edir. Bu konsepsiya keyfiyyət və kəmiyyət təhlili əsasında aparılan nəticələrin qiymətləndirilməsində çətinlik yaradır. İşdə müasir təhsil prosesində hər iki anlayışın elementlərinin inteqrasiyası məsələləri nəzərdən keçirilir. Qeyd olunur ki, təlimin effektiv təşkili müəyyən davranış reaksiyalarının formalaşmasını, idrak aktivliyinin, tənqidi və məntiqi təfəkkürün, habelə müstəqil operativliyin inkişafını nəzərdə tutur.

Beləliklə, biheviyrist və koqnitiv təlim strategiyalarının sintezi təhsil prosesinin effektivliyinin və məhsuldarlığının artırılmasına, eləcə də təhsilalanın şəxsi-fərdi keyfiyyətlərinin inkişafına şərait yaradır.

*Açar sözlər: koqnitivizm, biheviyrist, təfəkkür, vərdiş, yaddaş, qabiliyyət, təhlil*

## Introduction

In pedagogical activity, the question of the mechanisms of learning and knowledge acquisition occupies a prominent position. Throughout the 20th century, various theoretical approaches and concepts were developed that sought to explain the nature of learning and focus on effective ways of organizing the educational process. Among the most significant scientific concepts, behaviorism and cognitivism occupy a central place, having had a significant impact on the development of modern educational theory.

### Research

Behaviorism views learning as a process of shaping human behavior based on stimuli and responses, where external conditions have an influence. Cognitivism, on the other hand, focuses on studying the internal mechanisms of human cognitive processes, viewing learning as an active process of information processing.

Despite the difference in theoretical concepts, both approaches have made a significant contribution to the development of educational activities. In this regard, a comparative analysis of cognitivism and behaviorism, determining their potential, principles, and ideas in the educational process, becomes particularly relevant.

In the context of the rapid development of educational science, it is particularly important to study various theories of learning that reveal the mechanism and system of knowledge and cognition formation in educational activities. In terms of its significance, learning is not simply a reaction, but a complex process of information formation in the brain system (Devi, 2017, p. 65). Among the most significant concepts in strategic education, attention is paid to concepts such as cognitivism and behaviorism. The concept of behaviorism is a direction in the pedagogical activity of the education system that reveals the essence of the process of behavior formation under the external influence of a facilitator, as well as educational procedures. In particular, there is a connection with psychological orientation, which implies the correct use and regulation of emotional processes, including thoughts, feelings, and motivations. Each concept is examined through specific teaching methods. Assessing the significance of self-perception is challenging, so it is directed toward external research in educational activities, under the guidance of a teacher. The presented idea can be postulated through observation to analyze cause-and-effect relationships and the impact of educational activities on students. The initiated direction is cognitivism. Cognitivism is a special direction in psychology and pedagogy as a process of information processing. This approach is based on the premise that cognitivism determines the architecture filled with a methodological complex of concepts such as thinking, perception, memory, attention, and understanding. At the root of critical thinking, there is a dependence on the environment, which requires an appropriate social setting (Solodikhina, 2022, p. 40). It is based on the active construction of knowledge rather than the classical response to stimuli. Behaviorism is a system that interprets the formula as action-reinforcement-consolidation. A distinctive feature of behaviorism is the specificity of the correct relationship between the teacher and the students through compliance with the norms of interpersonal relations. It is in this terminology that reflection depends on the role of the teacher, because after the action performed by the student, the stimulation phase comes. If there is a positive reaction to the student's work, then the possibility

of the same excellent performance may be repeated and varied in the student's activities. For example: the topic "The role of khanates in the history of Azerbaijan." In the textbook, this topic is designed for two lessons. The student prepares a report on the specified topic, uses a layout, models the problem, reveals the main events, and proposes a course of action dated from 1747 to 1806. The key to success in the teacher's influence on the student's motivational activity is mutual understanding, established contact, and the desire and willingness to overcome difficulties in learning (Shenberger et al., 2017, p. 68). Consequently, the student receives positive reinforcement, and the likelihood that they will produce higher-quality work next time increases significantly. There is a set of specific characteristics inherent in human behavior that explain behaviorism: stimulus, response, reflex, operant conditioning, positive and negative reinforcement, formation, and control. The above allows us to assert the following identity: when one event follows another in a student's behavior, it was probably caused by it. A special position is that, in cognitive understanding, the learner can adopt the behavior patterns of other people through observation and analysis (Chernova et al., 2015, p. 325). This is also related to information processing, which manifests itself in cognitivism. Cognitivism is a special direction that considers learning as a process that includes: cognitive load, structure, metacognitive skills, analysis, and the practical application of knowledge. The idea of this concept is implemented through the active role of the student, who himself states and analyzes the material received, rather than passively assimilating knowledge. Moreover, a special element of learning is the comprehension of information, analysis, synthesis, argumentation, and conclusions. Along with this, the facilitator provides the opportunity for the student to independently explore the problem, as opposed to presenting ready-made answers, thereby revealing the creative and analytical thinking of the learner. The relationship between students is of particular importance, and this problem is solved with the help of diagnostic methods that reveal the cognitive activity of the learner (Məmmədova, 2022, p. 49). The effectiveness of the above-mentioned cognitive structure is most evident in organizational teaching methods, group work, pair work, individual work, and frontal activity. This provides an assessment of the conscious acquisition of material during the learning process, as well as group dynamics and collective relationships in the social environment.

The curriculum is a structure, a system of the educational process that shows what and in what sequence the student learns. This corresponds to the principle of cognitivism, namely, active assimilation of material. According to this concept, knowledge is assimilated in the phase of active learning and processing of information, rather than mechanical memorization. Also, in the current period of change in the education system associated with the use of innovative technologies, there is an approach to elevating the role of the teacher and mentor (Abbasov & Quliyeva, 2024, p. 39). One of the principles of cognitivism is determined by performance and efficiency. Presenting material through presentations, short video files, and test questions clearly demonstrates students' mastery of the data and answers the question of how new information will influence the course of events in the next new topic for study and learning. There are also different stages of integration: 1) manifestation of personality; 2) personality; 3) core of personality (Mustafayeva, 2024, p. 17). Step-by-step assimilation of information initiates the sequential presentation of material from simple to complex so that students can transform information. For example: in 1096, the organization of the Crusades. At the initial stage, students learn basic historical facts: when and where the Crusades took place, which states participated. Based on these facts, the student analyzes and moves on to complex knowledge, answering questions about the causes, prerequisites, and conditions that led to the Crusades. After argumentation and analysis, the emphasis is placed on structuring and chronological sequence of information perception, rather than on the traditional stage. The most important areas of study were and remain research on the organization of knowledge in an individual's memory and the formation of cognitive processes (Korotaeva & Andryunina, 2017, p. 164). The principle of metacognition is activated by self-control and reflection. Students evaluate their thought processes, draw conclusions from their arguments, correct mistakes, and plan further action based on the shortcomings identified. This approach is based on and focuses on self-regulation and reflection in the pedagogical organization of learning. The fundamental characteristics of cognitivism are: skill, ability, memory, thinking, and capacity. A skill is a mechanical action that has been formed as a result

of repeated practice and the consolidation of experience in memory. For example: rapid perception of text. When a student has developed a regular reading practice, cognitive strategies automatically kick in when they see an unfamiliar text. The role of skill in cognitivism is to perform actions that require minimal control. Skill is the ability to consciously apply the knowledge gained through theory and practice. For example, a student's knowledge of multiplication and division tables will not be difficult when performing operations with fractions or equations, because the basic steps of this solution are already familiar and applicable. Thus, these processes enable the meaningful use of learned information and experience. Memory is the process of storing and reproducing information, ensuring the accumulation of knowledge and experience. For example, a student memorizes the dates of historical events and can place a particular event in the correct chronological order. Because of this, memory plays a huge role in the formation of thinking. Thinking is the highest cognitive level, with the help of which the learner analyzes, compares, and explains a problem. For example, a student compares the socio-political and economic situation in Azerbaijan before 1918 and after the proclamation of the Azerbaijan Democratic Republic in 1918, identifying changes in governance, the country's economic situation, and citizens' rights. Cognitive mechanisms provide levels: actualization of cognitive mechanisms, educational cognition, and manifestation of the activity of the subject of cognition (Tarasova & Makoeva, 2022, p. 74). It is worth noting that thinking triggers the brain's cognitive mechanism, ensuring information processing. Ability is a personal and individual characteristic of a person, the formation of skills when performing a certain activity. For example: learning foreign languages, with this concept, words are memorized quite quickly and are pronounced in the correct sequence in a sentence. Consequently, ability determines the learner's potential for effective, strategic assimilation and application of knowledge.

The application of behaviorism in education is expressed through certain specific concepts. The hypothesis of behaviorism asserts that the entire learning process is the formation of habits caused by reinforcement and reward (Mahbub & Beedle, 2025, p. 273). The effectiveness of behaviorism lies in the formation of precise skills through repetition and reinforcement. For example, when learning to read and write, a child consistently repeats their actions, writes letters in cursive, and solves problems. For each successful completion, there is a reinforcement phase in the form of praise, points, or stickers. This helps to make the behavior automatic. Because of this, it is possible to achieve the desired behavior through step-by-step training. The essence is that the concept of a skill is divided into step-by-step actions, and each separate part is reinforced. Effectiveness in this aspect allows you to build complex skills, making learning more concrete. The specificity of this process also lies in ensuring discipline and behavior control in the classroom. This focuses attention on maintaining order and increasing concentration. The above allows us to assert that there is a certain direction in behaviorism, namely its application in various fields. The conditioned nature of the behaviorist approach has strong potential where learning is aimed at forming knowledge through specific behavior, repetition, and reinforcement of strictly structured goals in educational activities.

A comparative analysis of cognitivism and behaviorism is of paramount importance. The main idea: cognitivism is a strictly directed process of information processing in consciousness and understanding. Behaviorism is the formation of observable behavior through stimuli and responses. The main criticism of behaviorism is its limited understanding of mental processes, which often depicts students as passive recipients of information (Huda, 2023, p. 143). The parameter of focusing on certain characteristics, the influence of cognitivism is based on the processes of thinking, skill, and memory. Behaviorism notes external behavior and reactions to stimuli. The role of the facilitator in cognitive learning is to organize cognitive activity, guide and organize thinking, and help students comprehend the material. Behaviorism confirms the role of the teacher as a controller of behavior and skill formation. Assessment of results in the first aspect is qualitative and quantitative, namely analysis, application of knowledge, and development of thinking. Assessment is an important part of learning and plays a special role in studying its effectiveness and quality (Hüseynzadə və b., 2021, p. 462). Behaviorism, on the other hand, is based on quantitative assessment - the correctness of actions, speed of reaction, and task completion. The positive side of cognitivism is manifested in the development of thinking, creativity, the ability to apply knowledge in new ways, and long-term,

conscious understanding. Behaviorism is characterized by simplicity of measurement and effectiveness in reinforcing certain facts and skills. The negative side of the first concept is expressed in the complexity of measuring results, the need for a more developed lesson structure, and active student participation. The disadvantages of behaviorism lie in the inability to read internal cognitive processes, limited only to actions through observation, which can lead to mechanistic learning.

### Conclusion

Within the framework of the concept under consideration, the prospects and effectiveness of the development of behaviorism and cognitivism are outlined. Behaviorism as a principle is used in a system of points or ratings, rewards for correct answers, and immediate feedback. It is effective for reinforcing basic, specific skills and is necessary in online courses, distance learning, and inclusive education. Behaviorism influences the maintenance of discipline and behavior control. The development of cognitivism is aimed at analyzing the information received, developing analytical, logical, and creative thinking, and forming independent argumentation. Artificial intelligence, project activities, and various adaptive learning platforms are used as cognitive technologies. This allows for the meaningful assimilation of information, processing, and directing it towards the formation of practical qualities such as skills and abilities. The general trend is toward the need for modern education to focus on and acknowledge concepts such as behaviorism and cognitivism. Behaviorism is used to develop skills and control the application of knowledge in student behavior. Cognitivism is used to develop thinking and assimilation of material. Effective organization of learning involves combining behaviorist methods of consolidating knowledge and skills with cognitive strategies for developing independence. In this regard, these concepts and the integration of elements open up new perspectives for improving education.

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