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# DEVELOPMENT OF COGNITIVE COMPETENCIES OF STUDENTS THROUGH INDEPENDENT EDUCATION

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**Abstract**

The article discusses cognitive competencies as students' deep understanding of knowledge, their application in life and professional activities, independent acquisition of new knowledge, ability to think in new ways, processes of knowledge and understanding, competence, acquisition of necessary knowledge and skills in a certain field and their implementation, cognitive competence, a person's potential to perceive, understand, analyze and effectively use information, factors for developing students' cognitive potential, active teaching methods, methods aimed at thinking, analyzing and discussing content, not just listening, cognitive competencies, problem-based teaching, providing students with the opportunity to independently solve specific tasks and problems, deepening their thinking, independent access to information sources, use of the Internet, books, scientific articles and other resources, the use of technologies in education, factors for developing students' cognitive competencies in the process of independent learning, methods for their formation and practical recommendations, the introduction of effective pedagogical technologies, increasing students' ability to think independently and integrating them into the world of knowledge. issues of preparation for the market are presented.

**Key words**

thinking, analysis, discussion, thinking, intellectuality, skill, student, education, knowledge, talent, creativity, independence, cognitive, reflexive, deepening, competence, preparation, factor, formation.

**Introduction.** In the modern educational process, the role and importance of independent learning in the formation of students' knowledge and skills is increasingly growing. Independent learning is a type of education aimed at developing students' ability to independently search for, analyze, implement knowledge and solve problems, without relying only on the information provided by the teacher. In this regard, cognitive competencies - that is, specific intellectual

skills such as thinking, analyzing, discussing, reflecting - are an important factor in further deepening students' knowledge and preparing them for life.

Today, success in education depends on students' ability to independently acquire knowledge and assimilate new information. Therefore, it is necessary to study and introduce methods and technologies aimed at developing cognitive competencies in the process of independent learning. The relevance of this topic is explained by the fact that research in this area serves to improve the quality of education and the personal and professional development of students [10].

In modern society, knowledge and technological progress are developing at a very rapid pace. This requires new requirements and approaches to the educational process [12]. In the modern education system, not only memorizing information, but also the ability to deeply understand it, analyze it, think in new ways, and independently solve problems, i.e. cognitive competencies, are of great importance. Therefore, the development of students' cognitive potential is one of the main tasks in increasing the efficiency and quality of the educational process.

The independent learning process serves to increase students' interest in learning, ensure their personal participation in the learning process, and form a sense of independence and responsibility [11]. In this process, students have the opportunity to expand their knowledge by researching information themselves, using sources, reflecting, and solving problems without help. At the same time, cognitive competencies are a necessary basis for students to deeply understand knowledge, think logically, and develop innovative ideas.

Also, the development of cognitive abilities in the educational process is important not only for the effective organization of the learning process, but also for achieving success in various areas of life. Because with the help of these abilities, students will have the opportunity to understand complex information, integrate new knowledge, and solve problems with creative approaches.

**Main part.** Today, studying the relationship between independent learning and cognitive competencies, creating mechanisms for their effective development is one of the most relevant areas of scientific and practical research in the field of education. Therefore, this work provides a comprehensive analysis of the factors, methods and technologies that affect the development of students' cognitive competencies in the process of independent learning.

Today, new requirements are being imposed on the education system, among which the development of students' independent thinking and cognitive competencies occupies a special place. Cognitive competencies are intellectual skills such as understanding, analyzing knowledge, solving problems and forming new ideas [13]. Independent learning, in turn, provides students with the opportunity to

independently search for, analyze and act independently. In this regard, the development of cognitive competencies in the process of independent learning is an important factor in improving the quality of education [15].

Independent learning is the process of students' independent search, analysis, selection and assimilation of information in the learning process, which ensures their personal activity and deepening of knowledge. Today's educational requirements are such that the student should be formed not as a receiver of knowledge, but as a creator of knowledge. This feature of independent education serves to develop cognitive competencies.

The word "cognitive" comes from the Latin "cognitio" - "to know", "to perceive", and in the fields of psychology and pedagogy it refers to concepts related to the mental processes of a person such as receiving, processing, understanding and remembering information. Cognitive processes include intellectual activities such as attention, decision-making, analysis and problem solving.

The word "competence" comes from the Latin (competentia) and means "ability", "competence", "occupying a confident position". Its meaning is the ability to possess the necessary knowledge and skills in a certain field and to effectively apply them in practical activities [14].

Therefore, “cognitive competence” is a person’s potential and skills in cognitive processes, that is, the ability to successfully perform mental activities such as receiving, understanding, analyzing, storing, updating, connecting with other knowledge, and solving problems.

1. In pedagogy and psychology:

Cognitive competence is a set of thinking skills, the ability to understand meaning, problem-solving skills, logical and critical thinking skills, and the ability to effectively process information that students or individuals use in the process of learning.

2. Problem solving and decision-making:

This skill is related to a person’s ability to analyze, evaluate, consider different points of view, and make rational decisions based on them in complex situations.

3. Role in education:

Cognitive competencies serve as the basis for students to deeply understand knowledge and apply it in life and professional activities. Based on these competencies, students can independently acquire new knowledge, analyze and think in new ways.

- cognitive - processes related to knowledge and understanding;

- competence - the ability to acquire and implement the necessary knowledge and skills in a certain area;

- cognitive competence - a person's potential to perceive, understand, analyze and effectively use information.

The development of students' cognitive potential depends on a number of factors, including [16, 17]: active teaching methods: methods aimed at thinking, analyzing and discussing content, not just listening, increase cognitive competencies; problem-based teaching: provides students with the opportunity to independently solve specific tasks and problems, deepening their thinking; independent access to information sources: using the Internet, books, scientific articles and other resources increases students' research potential; Use of technology in education: in today's digital world, electronic learning platforms, interactive programs and multimedia tools greatly contribute to the development of cognitive competencies.

The following pedagogical methods are effective for the development of cognitive competencies in the process of independent learning:

- project-based learning: students learn to solve problems independently by carrying out a project or research on their own;

- case method: analysis of real-life events or situations increases students' understanding of complex information and logical thinking;

- group work: students develop communication and creative thinking skills in the process of solving problems together;

- reflection and self-assessment: students deepen their knowledge by evaluating their learning process and results.

**Results and Discussions.** One of the main ideas of the educational process in the modern education system is the formation of students' potential for independent learning. Currently, education focused not on the transfer of knowledge, but on its creative processing and application is gaining importance. From this point of view, cognitive competencies - a system of skills and abilities that include intellectual processes such as thinking, analysis, problem solving, decision-making - play a central role in improving the quality of education (Anderson, 2005). In the process of independent learning, students have the opportunity to develop these competencies independently [2].

1. Theoretical foundations of independent learning:

The concept of independent learning (self-directed learning) is explained by several pedagogical theories. For example, Knowles (1975) emphasizes increasing the student's personal responsibility and activity in education. According to him, independent learning is the student's ability to plan his own learning process, select resources, and evaluate his own knowledge [7].

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L.S. Vygotsky's [5] theory of social constructivism also supports the main elements of independent learning. According to it, knowledge is formed through social interaction, but in order to internalize and improve the acquired knowledge, students need to engage in independent activity (Vygotsky, 1978).

2. The concept of cognitive competencies and their role in education:

Cognitive competencies in educational psychology and pedagogy include a high level of thinking, effective processing of information, problem-solving skills, critical and creative thinking (Bloom et al., 1956; Anderson & Krathwohl, 2001). According to Bloom's taxonomy, cognitive processes include stages from memory to analysis, synthesis and evaluation, which are important in deepening students' knowledge [1, 4].

Cognitive competencies are the main tools for students to apply knowledge in practical life, solve problems in learning new knowledge, and make independent decisions (Schraw & Dennison, 1994) [18].

3. Factors influencing the development of cognitive competencies in the process of independent learning:

Active learning is a system of methods that require students to actively participate in the learning process, which helps to develop cognitive capabilities (Prince, 2004) [9]. For example, problem-based learning increases students' ability to independently analyze and solve problems (Barrows, 1986) [3].

Metacognitive abilities - the ability to understand and control one's own thinking processes - are closely related to cognitive competencies (Flavell, 1979). Independent learning requires students to plan, control, and evaluate their own learning processes. At the same time, the research approach encourages students to be independent in solving problems [21].

In the modern education system, e-learning platforms and digital resources facilitate students' independent learning and serve to expand their cognitive skills (Means et al., 2010) [8]. For example, interactive tasks or virtual laboratories in an online environment increase students' analytical and synthesis abilities.

4. Pedagogical approaches to the development of cognitive competencies in independent learning

- Project-based learning encourages students to find independent solutions to problem situations (Thomas, 2000) [20].

- The case method teaches students to analyze complex events and make decisions (Herreid, 2007) [22].

- Collaboration in a group strengthens students' creative thinking and ability to solve problems together (Johnson & Johnson, 1999) [6].

- Through reflection and self-assessment, students gain a deeper understanding of their knowledge and skills (Schon, 1983) [19].

Conclusion. In the current educational process, independent learning serves as an important factor in the development of students' cognitive competencies. Cognitive competencies - the ability to understand, analyze knowledge, solve problems and think creatively - play a key role in the personal and professional development of students. Therefore, teachers and educational institutions should pay attention to improving the process of independent learning, developing active teaching methods, metacognitive skills and strengthening these skills through the effective introduction of modern technologies.

Cognitive competencies also play an important role in the professional activities of students. They allow them to systematically solve complex tasks, quickly master new knowledge and offer innovative solutions. Therefore, the formation of these skills in the process of independent learning is a priority task for educational institutions.

Thus, the process of independent learning is an effective tool for the development of students' cognitive competencies. By introducing pedagogical technologies and innovative methods in this process, students' independence, thinking and problem-solving potential can be strengthened. This not only increases the quality of education, but also becomes an important factor in preparing students for life and professional activities.

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