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Formation And Development Of Students' Cognitive Abilities In Engineering Graphics Training

Boymuratov Farrux Xamzayevich
Karshinskogo engineering and economic institute
farrux.boymuratov@mail.ru

Annotation: The article discusses methods for the formation and development of cognitive abilities, metacognitive skills, cognitive interests, and self-regulation of students in teaching engineering graphics. Overcoming the difficulty in which a student experiences situational interest while completing a learning task.

Keywords: cognitive ability, metacognitive skills, self-regulation, cognitive interests, person-object theory of interest, subconscious mechanisms, emotional control.

Introduction. Cognitive ability is a person's ability to perceive, understand, process and use information to solve problems, make decisions and adapt to new situations. It includes aspects such as attention, memory, thinking, perception, speech, problem solving, logical thinking, etc. Cognitive abilities play an important role in our ability to learn, adapt, and function in daily life [1].

To develop students' cognitive abilities in teaching engineering graphics, a teacher can take the following actions:

1. Create structured and understandable educational materials that will help students perceive information and understand its essence. For example, use clear illustrations, diagrams and graphs.

2. Provide opportunities for practical application of acquired knowledge. This may include completing tasks, designing and creating real objects, or using computer programs for modeling and visualization.

3. Encourage students to think independently and solve problems. The teacher can ask questions that provoke analytical and critical thinking, as well as propose tasks that require the search and application of new knowledge.

4. Provide feedback and support to students. The teacher can analyze and evaluate student work, point out errors and suggest ways to correct them. It is also important to reward their efforts and achievements.

5. Use a variety of teaching methods. The teacher can use various forms of work such as lectures, practical exercises, group projects, etc. to stimulate different cognitive abilities of students.

6. Promote the development of metacognitive skills. Metacognitive skills include the ability to plan, monitor and evaluate your learning process. A teacher can help students recognize their strengths and weaknesses, teach them self-regulation strategies, and help them develop confidence in their abilities.

In general, the teacher should create a suitable educational environment that will promote the development of students' cognitive abilities in the field of engineering graphics.

Metacognitive skills are the ability to be aware of, monitor, and regulate one's thinking and learning processes. These include understanding one's abilities and limitations, planning and organizing one's work, monitoring and evaluating progress, and using self-regulation strategies to achieve one's goals. Having metacognitive skills helps students learn more effectively and apply acquired knowledge in various situations [7].

Self-regulation is the ability to control and regulate one's behavior, emotions and thinking in order to achieve set goals. This includes the ability to manage your resources such as time, energy and attention, as well as the ability to overcome obstacles and stressful situations.

Self-regulation involves a number of skills and strategies, such as goal setting, planning, monitoring progress, switching between tasks, managing emotions and stress, adapting to changing environments, and self-esteem. She helps students become more organized, responsible and independent in their learning.

Teachers can help students develop self-regulation skills by teaching specific strategies and techniques, such as planning and organizing work, time management, managing emotions, etc. It is also important to provide students with feedback and support so that they can recognize their progress and receive recommendations for improvement.

LITERATURE ANALYSIS AND METHODS

The word "cognitive" refers to cognitive processes that include thinking, perception, attention, memory, and problem solving. Cognitive processes are concerned with processing information and understanding the world around us.

Students' cognitive interests refer to their desire and desire to know, learn, and understand new information and concepts. Developing students' cognitive interests means creating conditions that encourage their active participation in the learning process and contribute to the development of their thinking, perception, attention, memory and problem-solving skills. This may include the use of interactive teaching methods, discussions, tasks and projects that require analysis, synthesis and critical thinking. Developing students' cognitive interests also involves creating a stimulating and supportive environment where they can ask questions, express their thoughts and ideas, explore new subjects and concepts, and develop their intellectual curiosity and independence.

However, such research could include examining the impact of different teaching methods on students' cognitive abilities, analyzing the effectiveness of using new technologies and software for teaching engineering graphics, and examining the relationship between the development of cognitive abilities and student success in the field..

The extent to which a student experiences situational interest while performing a learning task depends on at least two factors: [3] external stimuli in the learning environment that arouse

interest, and [2] internal predispositions such as individual interest. The purpose of the present study was to examine how both factors influence situational interest during task performance. Path analysis was used to examine the influence of individual interest on seven situational measures of interest and knowledge acquisition. The results show that individual interest has a significant effect on situational interest only at the beginning of the task, and then its influence weakens.

CONCLUSION

From a person-object-interest theory (POI) perspective, the development of interest and interest-oriented motivational orientations can be explained at the level of functional principles by referring to a dual regulatory system consisting of both the cognitive and cognitive systems. rational and partially subconscious mechanisms of emotional control. It is assumed that in this regulatory system, emotional experiences associated with the satisfaction of three basic needs (competence, autonomy and connection) play a decisive role [4].

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