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A UNIQUE APPROACH METHOD TO DESIGNING MODERN RESIDENTIAL COMPLEXES (USING A BUILDING MODEL AS AN EXAMPLE)

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Annotation: This article analyzes innovative and functional approaches to designing modern residential complexes. Using a building model as an example, it proposes contemporary design solutions that consider architecture, aesthetics, energy efficiency, and ecological balance, focusing on user comfort and urban planning requirements. The study offers recommendations on the functional zoning of the residential complex developed based on the model, its harmony with the landscape, and the placement of structures. The article highlights an effective methodology for designing residential buildings based on modern architectural trends, material selection, and principles of sustainable development.

Keywords: modern architecture, residential complex, design, building model, functional zoning, ecological approach, urban planning, energy efficiency, landscape design.

It is known that people differ from each other in many ways. For example, some individuals have a remarkable ability to remember what they have seen or experienced and can recall it accurately when needed. Others possess the skill to describe any object they see in great detail. Some people think more precisely about what they have heard, while others can express their emotions clearly and simply, and some rely on various imaginative forms and meanings. The field of architectural drawing is no exception in this regard; some individuals tend to incorporate elements of imagination into every drawing [23, p. 24]. Thus, people's impressions of the external world and their ability to organize these impressions mentally vary greatly.

On the other hand, there are professions that foster the development of certain qualities in a person. For example, an operator working with large automatic control systems learns to focus attention even on the smallest changes, while a designer becomes skilled in abstract mathematical calculations. This shows that a person's capacity to reflect the properties and characteristics of the external world in their mind develops in connection with their intellectual growth and professional skills. Therefore, we will briefly discuss the role of key cognitive processes—perception, sensation, memory, attention, thinking, imagination, willpower, and emotions—in human life and professional development, as these are important forms of mental reflection [23, p. 24].

These processes are very familiar and close to every person. We all know that we have consciousness and that we recognize certain distinct and holistic features of objects and phenomena around us. We also understand that these objects and phenomena evoke specific

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emotional experiences in us in different situations. For instance, a person who acquires knowledge about drawing from a book does not need to ask others whether they are truly reading the book themselves. Such processes naturally occur on their own. However, during an exam, if you find yourself unable to recall the material you studied late at night on descriptive geometry, you might wonder why and conclude, "I need to work on my memory" [25, p. 124].

Indeed, cognitive processes are, to some extent, controllable processes. If you want to expand your capabilities or improve your intellectual level, you need to learn certain rules and characteristics related to these processes.

At first glance, human consciousness appears as a unified whole, but in reality, it consists of several distinct processes: sensation, perception, memory, attention, thinking, speech, imagination, skills, and others. These processes are so interconnected that it is difficult to imagine one without the other. For example, try to look at something and perceive it without thinking about it—do you understand its essence? You will remember the drawings you looked at or read carefully. Or, when thinking about descriptive geometry problems, we simultaneously need previous mental images, our memory skills, inner speech, willpower, and attention. Even if by chance we come across a descriptive geometry problem, our reaction will involve not only emotions but also a series of thinking processes about how those problems originated here.

All these phenomena are related to psychological operations and processes. Therefore, they have been regularly studied as important issues in both pedagogy and psychology.

These cognitive processes form the foundation of effective learning and professional skills development. In educational contexts, understanding how perception, memory, attention, and thinking work can help tailor teaching methods that enhance students' comprehension and retention. For example, in the study of technical subjects such as architectural drawing or descriptive geometry, the ability to integrate sensory input with memory and reasoning is crucial for mastering complex concepts.

Moreover, imagination plays a vital role in creative professions, including architecture and design, where visualizing structures and spatial relationships is essential. The willpower and motivation of learners also significantly influence their capacity to focus attention, overcome difficulties, and persist in acquiring new skills.

Psychological research highlights that these processes are not static; they can be improved through training and practice. Educators can facilitate this development by employing strategies that stimulate mental activity, encourage active engagement, and create meaningful learning experiences.

In conclusion, the interplay of cognitive processes such as perception, memory, attention, thinking, and imagination underlies human learning and professional growth. Recognizing and nurturing these mental functions is fundamental for both personal development and successful

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performance in specialized fields like architectural drawing.

After the emergence of complex computer technology, human interest in their own psychological processes has significantly increased. Nowadays, much attention is given to the processes of receiving information (similar to traditional perception), processing it (akin to thinking), and storing it (memory). However, this heightened focus also raises the importance of understanding and nurturing the natural, living mental processes in humans.

A similar phenomenon often occurs in our memory. When encountering a scientific problem, we might ask ourselves, "Where have I seen this before?" Even if we cannot recall the exact source, the structure, working principle, or other aspects of the problem feel familiar. This can be explained by the fact that experiences are stored in the brain through repeated practice, although only a portion of these memories can be consciously accessed.

Only when a person is ill or deeply troubled do various thoughts involuntarily surface—these are involuntary reactivations of stored information.

Involuntary observations during teaching have shown that students learning technical drawing tend to retain more information in their memory when their psychological processes are taken into account. Therefore, during lessons, visual aids related to the subject matter are widely used. Research indicates that such methods yield highly effective results.

Currently, there is a shortage of specialists in construction drawing in higher education institutions and vocational colleges, and often specialists from other fields are required to teach this subject. This situation somewhat affects the students' ability to fully master the material.

One major reason why conscious awareness contains less information than the brain actually holds is that humans selectively filter and process incoming data. Information deemed "irrelevant" is often ignored or forgotten. The brain reorganizes and transforms the information uniquely for each individual, making every person distinct and irreplaceable.

Higher education institutions and vocational colleges now impose stricter requirements for teaching construction drawing. Extensive efforts are underway to meet these demands. The specialists trained will undoubtedly contribute to national development, scientific and technological progress, and serve as a foundation for the new generation. Nevertheless, several challenges arise during specialist training.

Observations indicate a decline in students' mastery of construction drawing. For instance, some theoretical knowledge and graphical skills are acquired during school drawing courses, which provides a foundation for higher education. Students who studied geometry in school also gain some prerequisites for construction drawing. However, the overall level of mastery remains low, and between 30% to 60% of students show underdeveloped spatial imagination, a critical skill for construction drawing.

This represents a pressing issue because the essence and foundation of construction drawing can only be truly understood and mastered by individuals who possess developed spatial imagination

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and relevant skills. Several psychological, pedagogical, and methodological factors contribute to this problem, including:

- Difficulty or inability of students to understand the subject matter;
- Familiarity and repetition of material, leading to a lack of interest;
- Absence or weakness of spatial imagination;
- Incomplete comprehension of topics;
- Lack of spatial imagination for subjects that require visualization;
- Insufficient motivation and engagement from teachers to stimulate students' independent work, homework, and graphic assignments;
- Students' failure to reinforce knowledge despite interest in graphic education;
- Lack of effort to expand, improve, and develop acquired graphic skills;
- Distractions and lack of attention during lessons.

Although experienced teachers rarely encounter these problems, they do still occur. In higher education and vocational colleges, the curriculum for construction drawing is more extensive and complex than school-level courses, which theoretically should foster student interest in graphical education. However, traditional teaching methods often cater to students with lower academic performance, causing advanced students to become bored and less engaged, while struggling students fall further behind. Such disparities in student performance impede active learning and are also reflected in the development of spatial imagination. Students' interest and level of mastery in graphical education vary widely, presenting challenges for instructors. Therefore, the development of spatial imagination should be studied as both a pedagogical and psychological problem to find effective solutions.

When a teacher organizes lessons in graphic education, particularly in teaching various levels of technical drawing, it is crucial to consider the students' levels of interest and mastery of the subject. Students who have not yet developed or have a low level of interest in graphic education may experience boredom and lack of motivation during the lessons. If the teacher fails to take this into account and continues the lesson without engaging these students, their comprehension and acquisition of graphic knowledge may significantly decrease. Conversely, if the teacher attempts to address this issue without a clear strategy, the students' interest may further decline. Therefore, it is essential to design lessons that incorporate psychological factors and motivational elements to stimulate and develop students' interest in graphic education.

In psychology, the concept of "imagination" (or mental imagery) refers to the mental representation and reflection of perceived objects, events, or phenomena in the human mind. This concept is particularly relevant in graphic education because the knowledge imparted in this field is not limited to simply transferring information onto paper. If graphic education were

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solely about producing large volumes of drawings or materials, students would need to process and memorize excessive amounts of paper-based content, which is impractical. The teaching and learning process is complex and interactive, requiring a meaningful connection between the teacher and the student that goes beyond mere reproduction on paper. This complexity necessitates fostering students' interest in graphic education, as it allows them to strengthen and internalize knowledge effectively.

The teacher utilizes educational tools to transmit knowledge and activates the lesson by incorporating factors that stimulate interest in graphic education. Students, in turn, use these tools to acquire knowledge and actively form and develop their mental imagery based on their growing interest. For example, in construction drawing classes, students imagine building views, develop sections based on two projections, and visualize cutting planes mentally. These tasks are fundamentally dependent on students' ability to form spatial mental images, which in turn heavily rely on their interest in graphic education. Thus, interest in graphic education plays a vital psychological and pedagogical role during the learning process. Developing and effectively harnessing this interest is key to resolving the challenges faced by students in mastering technical drawing subjects.

Research by psychologists and pedagogues has highlighted the negative effects of low interest on the learning process and stressed the importance of introducing new teaching methods and methodological tools. The implementation of such methods, particularly those that enhance interest in graphic education, has shown promising results in improving student engagement and academic outcomes in higher education institutions.

The learning process is essentially an intellectual activity involving critical thinking and problem-solving. To enhance cognitive activity, teachers should pose challenging tasks that encourage students to think deeply and strive to find solutions. Unfortunately, many educators allocate most of the lesson time to introducing new material, often neglecting consolidation, connection with prior knowledge, and assessment of students' understanding. This leads to student disengagement, boredom, and a tendency to wait passively for the class to end.

Several strategies can be employed to mitigate these problems, such as enriching lesson content with interesting facts, historical materials, and, importantly, effectively utilizing students' interest in graphic education. Developing this interest requires the use of innovative teaching methods derived from unconventional educational approaches, along with careful planning of content and methodology. This is a critical pedagogical challenge, as teaching materials should not only foster individual student activity and interest in graphic education but also elevate their intellectual engagement.

Engaging students with sequentially interesting information, self-assessment tests, and educational games designed to facilitate understanding and motivation encourages independent study and learning. In some cases, students can even organize their study activities without direct teacher supervision, without negative impacts on learning quality.

It is important to emphasize that increased student activity, spatial imagination, and improved

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learning processes in graphic education lead to higher teaching efficiency and faster lesson progress. The clarity of educational content and the degree to which it is reflected in students' minds determine the instructional effectiveness. From a psychological standpoint, active engagement of all sensory analyzers during learning enhances memory retention of scientific knowledge about objects and phenomena.

Educational experiences, such as architectural drawings or visual presentations, stimulate students' memory and recall. Unfortunately, many higher education institutions still rely on traditional teaching methods that do not adequately utilize visual aids in accordance with student needs.

Moreover, both teachers and students recognize the necessity of providing technical resources in the learning process to improve understanding and engagement.

Based on students' interest in graphic education, the following positive outcomes can be observed during lessons:

- Long-term retention of knowledge acquired in technical drawing;
- Development of individual activity and independence;
- Ability to self-monitor and self-assess learning progress;
- Formation of informed opinions and critical thinking;
- Growth of knowledge and attention related to graphic education;
- Cultivation of national identity and patriotic values;
- Encouragement to value and take pride in graphic education;
- Familiarity with advanced pedagogical methods and their future application;
- Orientation towards competitive global practices and electronic innovations in graphic education;
- Standardized development of knowledge in technical drawing;
- Maintenance of stable attention and focus;
- Development of skills and talents, including spatial visualization of projects;
- Harmonization of sensory analyzers and cognitive processes;
- Increased mastery and concentration in the subject;
- Effective management of learning activities;
- Stimulation of active participation in lessons;
- Enhancement of reasoning abilities and problem-solving skills;
- Improvement of independent execution of graphic tasks;
- Formation of problem-solving capacity in technical drawing;
- Successful assimilation of lesson topics.

The ability to think critically and abstractly—engaging in comparison, analysis, synthesis, generalization, and concretization—is developed through graphic education. An important aspect of utilizing interest in graphic education is that it helps students form a clear and complete mental representation of the subject matter, reflecting the properties and elements of the objects

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in their minds.

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