The Role and Place of Independent Learning in The Development of Professional and Graphic Competence of Students in A Credit-Modular System

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Abstract: The article analyzes the role and importance of independent learning in the development of professional and graphic competence of students in a credit-modular system. The study highlights the ways of effective organization of the independent educational process, its role in the formation of creative and critical thinking of students. Recommendations are also given on improving self-study, increasing the effectiveness of mastering graphic disciplines through the use of modern information and communication technologies. The article discusses practical methods for developing professional graphic competence and ways to improve the quality of education based on innovative pedagogical approaches.

Introduction: The changes taking place in society are characterized by a change in the paradigm of social development, the training of competitive government specialists in the context of new personal and socio-economic changes in the education system in general and in the higher education system in particular, the need for sustainable self-development, education and self-education. Higher education as the most profitable area of investment is a priority area in the investment sector. Education remains one of the most important spheres of life, which has become the basis of the country's economy, since it implies the level of development of production, science and industry.

Socio-economic development in solving economic reforms and effective market development, the state relies on the younger generation, on the training of competitive specialists who are able to see and creatively solve problems and thus adapt to changing living conditions by mastering innovative development methods.

The specifics of the educational situation are characterized by the formation of a new, open system of higher education, its new content, including the transition to credit modules and a system of educational organization.

Credit means an extract and recognition of acquired knowledge, regardless of when and where it was obtained. It is a unit of exchange.

A module is a separate, individual academic subject. Encompassing both knowledgeable and professional aspects, education implies the completion of an appropriate type of control of knowledge, skills and competencies formed as a result of mastering the curriculum of students.

The credit module learning system, on the other hand, is a system for organizing the learning process of a curriculum, which systematically evaluates the knowledge, skills and competencies of students by tracking the learning outcomes of the module and final control based on the structuring of the content of each learning module.

The credit education system is based on the principle of transparency of student-centered learning, learning, and assessment, and consists of collecting and transferring test units. This system consists of increasing the number of test units previously collected at all stages of cumulative training.

Teaching according to the credit-modular system involves the organization of students' learning of

educational material according to a pre-designed modular program consisting of logically completed parts of the educational material (modules) having the structural content of each module.

The student chooses the required number of academic subjects to study and assimilate and undertakes to master them within a certain period of time. Such an organization of the educational process obliges the student to qualitatively assimilate the content of higher education, thereby ensuring objective recognition of the results in educational institutions of other countries. If in a traditional educational organization the teacher acts as a translator of ready-made knowledge and skills, and the student in most cases acts as a passive party, then in a credit-modular system the teacher acts as an organizer of the formation of the student's knowledge and skills. However, practice shows that based on the credit-modular learning management system, the modular learning management system, two thirds of the total study time is devoted to the student's independent work under the guidance of a teacher or without him.

Within the framework of the credit-modular system of higher education, first of all, it is necessary to solve the problem of the formation of skills in self-educational activities. With appropriate scientific and methodological support through a credit-modular system, it is possible to ensure the effective formation of positive domestic experience and self-education skills of students who have created a technological breakthrough in the organization of the education system.

The skills of self-educational activity are understood as a purposeful, conscious set of actions that allows the student to independently organize activities in accordance with their components: motive, purpose, content, operation-action, result, reflex.

In self-learning activities in the context of credit-modular technology, the following types of valuable skills are relevant:

- information and analytical (selection of sources on the problem; use of modern information library equipment, bibliographic and resource reference materials, including computer information; use of the method of reading, speed reading; preparation of abstracts, comments on information materials, plans, notes and texts of public speeches);

-the second group consisted of skills of self-organization of activity (planning independent work; formation of goals, hypotheses, methods of its verification; use of various methods of processing the results, including mathematical statistics);

-reflexive skills (identifying difficulties in self-development activities, determining their essence, modeling activities, evaluating the development of critical thinking).

It is worth noting that the skills of self-educational activity have common features with other skills:

- the nature of the skill, which always involves the conscious establishment of value relationships between the purpose of the activity, methods and conditions of its implementation;

- the implementation mechanism is the independent transfer of certain types of activities to new conditions.

The pedagogical potential of the credit-modular educational system in the formation of students' self-educational skills.

The structure of the credit-modular system reflects a certain set of relationships and interactions, as a result of which new properties arise.

Properties inherent in a system and absent in its individual components (properties resulting from interaction and unique to systems).

The credit and modular system of an educational organization is a dynamic system. By the nature of forecasting the dynamics of the system's behavior, it is a purposeful, implementation–oriented, credit-modular system of educational organization, the justification of pedagogical conditions that are a factor in the formation of students' self-development skills.

The property that arises as a result of the interaction of all components (goals, content, methods (technologies), means, forms, results) inherent in this system is the skills of self-educational activity.

The pedagogical potential of the system under study is determined by the functions implemented under the guidance of the teacher and in the process of the student's activity.

The pedagogical potential of the credit-modular system of an educational organization as a set of its capabilities (socio-cultural, systemic, organizational, legal conditions) includes:

- availability of information and content resources;

-focusing on identifying and overcoming the difficulties of self-development of students and teachers;

-the interaction of the teacher and the student on the basis of cooperation, the freedom to choose organizational forms, methods, and means of self-educational activity, the student's ability to choose an individual personal trajectory of self-educational activity;

-the student's personal involvement in various forms of

self-development.

It reflects the process of forming skills and abilities in the totality of the pedagogical potential of the credit-modular educational system.

This interpretation of the pedagogical potential of the credit-modular system of an educational organization required filling it with specific content. From the point of view of a system-holistic approach, it is advisable for us to determine the functions in the educational process through analysis.

The student with the teacher and others and the definition of his educational potential:

- reflexive (understanding of learned experience-cognitive, practical, creative, relationship experience);

- stimulating (determines the character of students and allows them to have a sufficiently strong and stable positive. Motivation for self-development, self-improvement);

- improvement (promotes the independent assimilation of new knowledge; serves as a means of updating existing knowledge and activating mental activity);

- directional (provides the formation of a system of ideas about future and prospective goals, plans and means. The current action defines the evaluation relationship);

-communicative (provides self-development, determines qualitative change).

Graphic competence is an integrated system based on the study of various graphic images. Graphic competence includes the following educational components: graphic literacy is the ability to read graphically, compile various design and technical documentation. Graphic information is information from various technical and technological literature. Graphical knowledge-concepts about the ways of graphical representation of products, processes, phenomena, norms and rules in accordance with their standard systems. Graphic skills-a person's willingness to work with spatial images created on various graphical bases, the ability to clearly express their thoughts and understand the thoughts of another person based on technical documentation. Graphic qualification-mastery of methods and software tools for working in graphic editors.

The purpose of graphic competence is determined by the social requirements of society, or rather by the modern features and requirements of the professional activity of a teacher of technological education, we have determined the graphic competence of his students based on the qualification requirements of higher education – This is a set of graduate competencies designed to perform graphic actions necessary for the professional activity of a teacher of technological education, based on which it stimulates the personal development of students in a complementary educational process of higher education. Each competence corresponds to the personal qualities of the students and is aimed at the appropriate application of knowledge in professional activities.

Competence means developing independent, integrated, systematic thinking and the ability to choose optimal solutions among the outlined alternative approaches based on modern means and methods of solving professional problems, depending on their results for the educational organization and society. Competence defines a person as a subject of professional activity, reflects the level of development of his ability to adequately and responsibly make decisions in problematic situations. When forming graphic competence, it is necessary to form graphic literacy.

Elementary graphic literacy: the reader knows the elementary laws of the theory of representations in parallel projection (parallelogram, cube, parallelepiped, prism, tetrahedron, ellipse-shaped circle, cylinder, cone); knows how to draw basic primitives in the graphic editors Paint, Word; knows how to change basic shapes. Functional graphic literacy: the student is familiar with the basic principles of the theory of representations of figures in parallel projection (maintaining the parallelism of straight lines, maintaining a simple ratio of figures on one and or parallel lines, representing the mutual diameters of an ellipse); He knows the analysis of metric relations in the original and takes them into account when describing a shape; he was able to form a new shape from basic primitives, connect shapes according to common elements, give color to a part of a given shape, connect or cut off two polygons; designate the elements of a shape (Circle, triangle, rectangle, ellipse, cone, prism, etc.).

Criteria for elementary graphic literacy: representation of the simplest geometric shapes; representation of shapes or geometric situations that meet specified conditions; performing basic constructions using a specified set of tools; restoring a shape based on specified graphical points or shape elements; constructing new shapes from specified source graphical images.

Criteria for functional graphic literacy: recognizing geometric shapes, adapting them to a specific concept or defining the type of shape; using the same element in different geometric shapes; comparing the

properties of geometric shapes, identifying their differences or similarities, dividing them into classes based on these features; reading graphic information verbally or analytically; development of students' spatial thinking; development of students' constructive abilities; development.

When analyzing the criteria of elementary and functional graphic literacy, as well as the requirements of DTS as a result of the formation of graphic competence, students need to know:

* Drawing the basic elements of geometry, methods for solving problems with spatial shapes, basic rules and methods for creating graphic images, state standards for the execution of drawings, computer graphics software;

* Self-creation of drawings of parts using mechanical (traditional) graphics, the use of theoretical material to solve specific graphic work, the use of special measuring and drawing tools, the use of computer technology in preparation for classes, independent organization of the educational process;

* Possess the skills of abstract thinking, spatial thinking, presentation of technical ideas through drawing, work with technical literature, be ready for independent creative activity.

In the process of studying the subject "computer graphics" as a general professional subject, students master graphic editors, including their basics, creating simple and using tools. The course also includes the topics "Descriptive geometry" and "Projection drawing", which will help you better master the work with automated design systems (CAD) and develop the skills of drafting constructive documentation on a computer. This allows students to understand the theory and put it into practice. The development of electronic educational and methodological support in the discipline "computer graphics" includes the topics "Descriptive geometry" and projection drawing". Students study the disciplines of "Technical creativity" and "Technical Mechanics", which are the basis for consolidating and deepening knowledge about automated design systems. During the course, students study "technical creativity" and new features of automated design system (CAD) programs and perform computational and graphical tasks, which gives them the opportunity to adapt to the conditions of professional and pedagogical activity. In the process, students learn three-dimensional modeling, which helps them develop their spatial and technical imagination. Students master the skills of building object representations and sections, using electronic libraries, as well as searching, storing and applying information, which is important for creating complex

graphical models and project documentation.

These events lay a solid foundation for the formation of students' graphic competence, provide the necessary knowledge and practical skills that will form the basis for training personnel appropriate to the needs of the labor market. In the field of information technology, based on computer terminology, content can be divided into three main groups: graphic (multimedia) content; technical content; and text content. Graphic content consists of images, photographs, diagrams, drawings, diagrams in various forms, as well as animations and videos. The technical content includes specifications, operating instructions, research data, numerical and tabular information. On the other hand, text content includes texts of various contents. According to DTS, future teachers of technology education should know how to work with types of content, including graphic content.

Modern design technologies develop methods and tools based on computer graphics, as well as use automated design systems (CAD). The human-machine interface is primarily a graphical interactive interface.

Computer graphics in the field of technological education the development, implementation and adaptation of software, visualization, construction, design, modeling, monitoring and promotion of software in this field, as well as the provision of project activities, cannot master it without knowledge of working with graphical information.

Now let's look at the basic competencies, which include graphic competencies that serve to form graphic competence: understanding the essence and social significance of a future profession, showing priority interest in it.; decision-making in standard and non-standard situations and taking responsibility for them; search and use of information necessary for the effective performance of professional tasks, professional and personal development; use of information and communication technologies in professional activities; independently determine the tasks of professional and personal development, plan self-education, professional development with an approach; adapt to the conditions of rapid technology change in professional activity.

The above-mentioned graphic competence is the basis for the conclusion that it is one of the professional competencies, these graphic competencies are formed within the framework of computer graphics and computer science modules.

In addition, the analysis of interviews conducted with employers and graduates, as well as the widespread use of graphics systems for solving various professional tasks, allows us to conclude that it is necessary to form

graphic competence. In addition, an analysis of the effectiveness of teachers of drawing, engineering graphics and computer graphics, as well as a review of curricula and curricula of subjects, as well as modules of graphic competence, is an integral part of professional competence. Graphic information is widely used in all spheres of human activity and is characterized by clarity and compactness. Based on this, it is necessary to improve the methodology for the formation of graphic competence, knowledge about the ways of presenting graphic information.

The educational and methodological complex for the discipline computer graphics" includes the following sections: theoretical information - this material is necessary and sufficient for the formation of graphic competence and includes the basics of engineering graphics, descriptive geometry and computer graphics.

It helps to solve complex tasks in the exercise, it allows the teacher to organize the execution of drawing and constructive work for students individually or collectively in a group, at a unique pace of each student. Independent and creative work is presented in an electronic educational and methodical complex that creates a unique learning environment for students when doing practical work. These parts form a unique learning environment that allows students to do practical work, together with the teacher, during the lesson or independently. The module contains a theoretical part containing methodological recommendations for practical work, as well as an electronic version of the completed work. Forms of organization of educational activities in the process of forming students' graphic competence: problem-based reports: reports of a problematic nature are characterized by an in-depth analysis of the presented material.

They help students develop independent creative thinking and teach knowledge acquisition skills. Forms of learning: methods that allow students to actively participate, aimed at developing practical skills. Round table: This format allows you to exchange ideas and discuss students. In conclusion, it can be noted that both the structural components of professional graphic competencies (educational, research, organizational, methodological, design and technological components) and basic competencies play an important role in the formation of graphic competencies. They aim to increase students' interest in the profession in the future.; making decisions in standard and non-standard situations and taking responsibility for them; searching for and using information necessary to perform professional tasks; using information and communication technologies in professional activities; serves to form professional qualities such as

independent task setting and organization of training for professional and personal development. It is also concluded that graphic competence is an integral component of professional competencies.

REFERENCES

Kuisinov O.A. "Technologies for the development of professional and pedagogical creativity of future teachers based on a competence-based approach" // T-2019, Doctor of Pedagogical Sciences (DSc) dissertation. - 245 p –

Muslimov N.A. Theoretical and methodological foundations of professional development of teachers of vocational education: Dissertation of Doctor of Pedagogical Sciences. Vol.: 2007. 275 p.

Muslimov N.A., Rakhimov Z.T., Khodzhaev A.A., Yusupov B.E. Educational technologies. The training manual. Tashkent Publishing House" Voris " – 2020. 192 b

Muslimov S.N. "Improving the methodology of developing professional graphic competence of future teachers of technological education" T-2020: Dissertation of the Doctor of Philosophy (PhD) in pedagogical sciences.

Muslimov S.N. "Development of professional graphic competence of future teachers of technological education based on an integration approach" T-2024: Dissertation of Doctor of Pedagogical Sciences (DSC).

Musalimov T. K. theoretical and methodological foundations of professional graphic training of teachers of drawing and fine arts at the pedagogical University [Electronic resource]: Dis. ... Dr. Ped."How about this?" disciplines: 13.00.08. Moscow : ubb, 2005 (from the collections of the Russian State Library) 250 p.

Musalimov T. K., Alijan A., Bekisheva A.D. A study of the problem of the formation of graphic competence of students in the lessons of fine geometry and engineering graphics / / http://kazatu .kz / asses / I / science / sf13_shmash_121.pdf.