

## **METHODOLOGY FOR THE DEVELOPMENT OF ARTISTIC AND CREATIVE ABILITIES OF FUTURE TEACHERS OF FINE ARTS IN THE PROCESS OF TEACHING COMPUTER GRAPHICS**

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**Abstract;** this article presents the methodology for the development of artistic and creative abilities of future teachers of Fine Arts in the process of teaching computer graphics, as well as scientific theories about the use of Information Communication Technologies by teachers in a developing time

**Keywords;** computer graphics, information technology, 3D Studio Max, Adobe Photoshop, Compass-3D, effects creation, raster graphics.

Currently, there is a process of rapid development of informatization, which is characterized primarily by the widespread introduction of modern information communication technologies into various spheres of human activity. Informatization of society, on the one hand, makes it possible to satisfy an individual's need for information, and on the other hand, it means that the created information becomes the property of all mankind.

Informatization of modern society has led to a change in the nature of professional activity on the basis of the introduction of information communication technologies into it. In this regard, the approach to training a specialist in various areas of professional activity has changed. It should be noted that in the next period, with the introduction of information communication technologies into the field of artistic activity, as well as the emergence of new types of artistic art, such as interior design, web design, there were some changes in the existing structure of the professional activity of the future teacher of Fine Arts. These changes bring some new requirements in the higher education system. Therefore, at present, innovative ways to effectively solve these problems are of paramount importance. The issue of searching for new conceptual approaches to the use of Information Communication Technologies in art education, creating new technologies, methods, forms, tools and ways to meet the requirements of the time of teaching academic disciplines is relevant.

In such conditions, the higher education system is faced with the urgent task of preparing specialists of high competence in the field of Education "graphics of Fine Arts and engineering" for professional activities. Computer technology opens up completely new development prospects in terms of professional activity. Computer graphics occupy a key place in many types of visual activity.

Thanks to new technologies, such areas of computer graphics as education, publishing systems, tools for creating virtual reality effects, multimedia publications, three-dimensional (3D) graphics and animation, computer games, creating images using special effects, the Internet are successfully developing.

Analysis of domestic and foreign literature conducted by researchers shows that a number of objective (lack of the necessary equipment and qualified personnel) and subjective (skeptical view of some specialists who adhere to traditional methods) reasons, it turned out that computer graphics have not yet found a worthy place in the training of specialists in the educational process. To date, there are very few special studies devoted to the theory and methodology of teaching computer graphics. N.P.Petrova, E.V.Ledigin and L.Ya.Nodelman's works on this topic are of particular importance. Devoted to methods, techniques and means of teaching Information Technology T.A.Boronenko, T.V.Dabodka, M.P.Lanchik, N.N.Pugach, L.V.Smalina, T.A. There are a number of scientific and methodological studies of yakovlevas, which are mainly devoted to the problems of the course "Informatics" in general educational communication technologies [4].

Thus, the need to study computer graphics, especially in modern conditions, by the specialties of art education, and the absence of an appropriate scientifically based theory and methodology for teaching this discipline, also determine the relevance of the selected problem. In addition, the relevance of the study and the feasibility of the set, in principle, computer graphics, make it possible to successfully solve the issue of organizing adequate perception.

The development of a teaching methodology for future teachers of Fine Arts on the artistic profiles of computer graphics, which makes it possible to increase the quality and effectiveness of classes aimed at developing creative abilities in the context of modern requirements for a specialist certified by society. This determines the problem and purpose of this study.

The Educational Course "computer graphics" teaches future teachers of Fine Arts not only the basic principles of creating images, but also the methods of using computer technology in the artistic design and modeling of objects, objects.

It is desirable that the course study be continuous, continuous. It is important to acquaint students with all types of graphics, as well as a number of graphic editors that are used depending on the purpose of working with images and the size of the work. These graphic editors include:

\* Adobe Photoshop is a multifunctional raster graphics editor designed to work with art photography and video files, which is used for image correction, collage and photomontage elements. The graphic editor is also used for commercial purposes in such areas as television, cinema, advertising, games. In a graphic editor, it is possible not only to correct images, but also to change shapes, save animations, make the most of layers and effects. These functions allow you to easily change images, reproduce noses and apply various filters.

\* Corel Draw is a vector graphics editor. With the help of this graphic editor, it is possible to create logos, advertising products, business cards and various other graphic manifestations, as well as work on the design of structures, photo, text, images, present artistic appearance compositions, perfectly perform actions related to the creation of geometric shapes, that is, shapes on the plane and in space.

• 3D Studio Max is a three-dimensional (3D) graphics editor. The knowledge gained in this graphic editor can be applied to modeling objects, as well as creating three-dimensional animation and layouts of various rooms [3].

The ability to use these graphic editors allows the creative thinking of the future teacher of Fine Arts to grow, to be creatively sought after. The computer will not be able to replace manual graphic work, but it will successfully fill it, put it in different forms and ensure the assimilation of new capabilities.

The course "computer graphics" includes lectures and practical classes. Logically, the course materials are divided into four main sections: introduction to computer graphics, algorithms for constructing and modifying images, methods and algorithms of three-dimensional (3D) graphics, image compression algorithms.

In raster graphics, the principles of color generation and basic color models are studied. Also, the basic principles of the device of technical means of computer graphics are described.

Raster graphics are the most realistic way to reflect objects of the surrounding world. Only quality raster images can reflect the entire diversity of processes and phenomena that the human eye perceives. So, if an image on a computer starts its way from an electronic digital camera or a scanned color photo, the raster shape is the most convenient way to achieve optimal picture quality.

Vector graphics are based on the methods used by programmers to create images consisting of simple dots, straight lines and areas painted in one color. However, with the development of computer design and technology, the pictorial capabilities of vector graphics have expanded. Currently, the best examples of vector graphics are almost as realistic as photographic images, also surpassing raster graphics in its potential capabilities.

The "computer graphics" course also provides an overview of the algorithms for constructing and modifying two (2D) and three-dimensional (3D) images. In particular, the mathematical aspects of the construction and transformation of images were considered, and various methods of processing different images were also presented. Models for describing three-dimensional surfaces are presented, and various approaches for displaying volumetric images are thoroughly illuminated.

At the end of this course, the most commonly used file formats for storing images and the algorithms used to compress graphic data in them are studied.

It is no exaggeration to say that the course is a component of improving the professional training system of future teachers of Fine Arts. The development and implementation of the content of the course is associated with a change in the content of the computer system, its software, in particular, the goals of the implementation of the didakhborot komunika tehnologiyalarik capabilities of computer graphics. The content of the course is aimed at the formation of specific abilities – a virtual, multidimensional perception of real objects of artistic education [2].

The general goals of Higher Education, taking into account the didactic capabilities and peculiarities of the course "computer graphics", are based on the assimilation of objects of art education through computer programs, in particular, the knowledge of artists-teachers, designers is described as follows:

- having computer methods for collecting, storing and processing (editing) graphic information;
- \* the ability to design activities in the professional sphere based on a systematic approach to the implementation of Information Communication Technologies in the field of Education;
- \* to have the skills to use computer systems in the design of practical techniques and methods of constructive modeling;
- \* methodological and psychological preparation for changing the type and nature of professional activity and work on interdisciplinary projects.

Practical classes play an important role in strengthening students 'theoretical knowledge of" computer graphics".

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The model of a specialist is determined by a complete description of his work to be performed. In accordance with the professional education program for training students in the educational direction" graphics of Fine Arts and

engineering", it is possible to determine certain qualification characteristics that characterize the knowledge, skills and abilities of the future teacher of Fine Arts.

In the block "natural-scientific and humanitarian Sciences", the mandatory minimum educational content for a teacher of Fine Arts implies the study of the course "Information Technology in education" and "higher mathematics", aimed at the formation of knowledge about the general characteristics of the processes of collecting, transmitting, processing and accumulating information, software and programming technologies. The courses "information technology in education" and "higher mathematics" are the main course that supports the entire complex of subsequent educational and methodological measures to prepare the future teacher of Fine Arts for the use of modern Information Communication Technologies in teaching. These courses belong to the first level of education and are studied in the first course. The main purpose of this course is to strengthen, deepen the students' knowledge of computer science and information technology acquired in technical communication technologies and, on this basis, to form propedeutically the skills of practical use of methods and means of Informatics in pedagogical activity.

It is permissible to admit that the content of education in computer science is constantly improving. This is directly related, first of all, to the constant updating of topics, technical base and software. All this necessitates the introduction of modern, new forms and methods of teaching. By introducing computer-graphic modeling questions to the computer science department, we have improved the content of this course.

The use of dynamic virtual models allows you to simulate processes and phenomena, observe objects and study their structure in detail. Interahorat komunik tehnologiyalariv models, designed in special disciplines developed by different companies, clearly show the next stages. Many virtual models are available on educational sites (<http://www.edu.uz>) provided.

These e-learning resources include tasks and inter-session control work. And their implementation implies updating and systematizing students' knowledge. It is also used in the organization of independent work of students. These resources play an important role in the final control of students' knowledge in special disciplines. The final control is carried out in the form of a simple exam, a computer test or the development of a thematic project.

It is advisable to include competence in the field of computer graphics in the composition of the professional competence of a teacher of Fine Arts. We understand that the competence of a teacher in the subject of computer graphics is not only a set of knowledge, skills and abilities in the field of computer graphics, but also the ability of graphic information to navigate in a modern information stream, be prepared to choose, be able to apply software, modern means of computer graphics in pedagogical activity. We highlight the following interrelated components in the composition of the competence of a teacher of Fine Arts in the subject of computer graphics:

knowledge of the content of competence in the subject of computer graphics (cognitive aspect);  
the presence of competence in the field of computer graphics in various standard and non-standard situations (behavioral aspect);

preparation for demonstrating competence in the field of computer graphics (motivational and value-semantic aspects).  
Having competence in the field of computer graphics characterizes the totality of knowledge, skills and abilities that a teacher must possess in order to be recognized as qualified in this field. The experience of demonstrating competence in computer graphics in various standard and non-standard situations involves finding and implementing an alternative pedagogical solution to the problem using computer graphics technologies in conditions of constantly changing professional activity.

In the conditions of active preparation of future teachers of Fine Arts for the use of informatization tools and information technologies in pedagogical activity, the concepts of the science of "computer graphics" are changing significantly. As software, the Compass graphics package was used, which includes two modules: Compass-graphics for two-dimensional design and compass-3D graphics programs for three-dimensional modeling. To consolidate students' knowledge of computer graphics, independent projects are offered. In the process of working on the project, students choose a suitable design for this project using their natural sense of color perception and using the computer's color palette. When carrying out these works, students can use ready-made graphic elements, as well as create their own. The computer graphics course allows you to show the creative abilities of students. The final work performed by students is distinguished by their bright individuality, a high level of skill and imagination.

Also of particular importance is the study of three-dimensional computer graphics programs, which are now especially in demand. In particular, computer modeling, construction of images of objects in three-dimensional space are used in almost all areas related to design, art objects and computer films. Three-dimensional computer graphics show a high-resolution model that is close to reality. Based on the above, it is advisable to develop a separate course "three-dimensional computer graphics and animation" for the study of three-dimensional computer graphics by future teachers of Fine Arts. Naturally, a student who graduated from the Faculty of "Art Studies" is required to be competent in computer graphics, since it is a kind of means of developing such qualities in students as the perception of space, abstract logical and figurative thinking, a sense of color, creative imagination, perception, attention, integrity of memory.

The dynamics and content of the continuous formation of professional competence of students will be incomplete if the additional reserve in the form of selection courses in the direction of Informatics and Information Communication TECHNOLOGIES, a system of independent work of students, production practice in the specialty, work on course and

graduation qualification work is not taken into account. We have developed a competitive course "computer-graphic modeling in the professional activities of a future teacher of Fine Arts", which has a block-modular structure.

We offer the following selection courses:

1. The state and prospects of computer-graphic training of future teachers of Fine Arts.
2. Spatial modeling and design in the Compass 3D LT software environment.
3. 3D Studio MAX software system.
4. The use of educational resources of the Internet on computer-graphic modeling.

The central place in the content of this selection course is occupied by the 3D Studio MAX software system, which allows students to participate in the creative process of modeling spatial forms.

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