NOVATEUR PUBLICATIONS
JournalNX- A Multidisciplinary Peer Reviewed Journal
ISSN No: 2581 - 4230
VOLUME 6, ISSUE 11, Nov. -2020

CREATION OF STUDENT PORTFOLIO IN THE PROCESS OF TEACHING COMPUTER GRAPHICS IN HIGHER EDUCATION INSTITUTIONS

RAKHMONKULOV FERUZ PARDABOYEVICH
Jizzakh State Pedagogical Institute
Department of Informatics and its Teaching City Jizzakh. Uzbekistan
feruz0123@jspi.uz

KHONIMKULOV ULUGBEK SUYUNBAYEVICH
Jizzakh State Pedagogical Institute
Department of Informatics and its Teaching City Jizzakh. Uzbekistan
xonimqulov_u@jspi.uz

ABSTRACT:

Computer graphics and animation is a necessary tool in the simulation of cinema, advertising, art, architectural presentations, prototyping and dynamics, as well as in the creation of computer games and educational programs. To date, new directions for the application of computer graphics are emerging, skilled artists and creators of computer models and demonstrations are in demand in the labor market

KEYWORDS: Computer graphics, ICT, visualization, diagram, animation, special effects creator.

INTRODUCTION

Teaching computer graphics has been recognized as an integral part of modern education. Achievements in the field of information and Communication Technology (ICT) in the field of providing information in the form of graphic images (drawings, diagrams, sketches, presentations, visualization, animated videos, virtual scientist, etc.) actualize the issues of training specialists.

The vocational training of future professionals in the field of computer graphics should be directed to the training of a competitive specialist in the labor market with high demand, the creation of a unified information environment and the rapid development of solutions in the field of software, visual products and ICT.

The relevance of the research problem depends on the social order of the society, the needs of the labor market and the rapidly developing infosphere conditions. Computer graphics and animation is a necessary tool in the simulation of cinema, advertising, art, architectural presentations, prototyping and dynamics, as well as in the creation of computer games and educational programs. To date, new areas of application of computer graphics are emerging, the labor market requires skilled artists and creators of computer models and demonstrations, in addition, new professions are emerging, such as special effect creators, a master of vector Arts, a fashion designer, an animator, a visualizer, etc.

In connection with Global informatization and the wide spread of computer graphics in society, the objectives of modern education are to prepare a qualified specialist who is ready for a successful professional activity, to consider the scientific and methodological approaches izlash, as well as the methodological issues of teaching computer graphics to students of higher education institutions, to develop, base and implement the components, the teaching and methodological manuals and guidelines for the study of computer graphics subjects, and the justification of the guidelines, imposes the obligation to develop them.

With the help of computer graphics, we understand the field of scientific knowledge that covers technologies (equipment, methods, means) for creating two-dimensional and three-dimensional images of computers of different nature (rastr, vector two-dimensional, vector three-dimensional, fractal, etc.). Therefore, the methodology of teaching computer graphics is the sum of knowledge on the principles, content, methods, tools and forms of organizing the relevant learning process.

In the proposed model of the methodology of teaching computer graphics, we distinguish several levels, such as motivational-purposeful, axiological, activity-process and reflective-evaluator:

In the process of training, it is recommended that students create a portfolio of personal documents (works created in the field of computer graphics) that reflect the knowledge, skills and abilities that may be required in the labor market. The main purpose of the portfolio is to help future graduates to move from study to work or continue their studies at a high level and to provide employers with full information about the qualification, as well as the academic achievements of students of higher education institutions. The Portfolio is undoubtedly important for all participants in the process of training and further use of the workforce in the modern labor market. Thus, for a graduate of a higher education institution, the portfolio includes, first of all, a psychological burden, its self-assessment and analysis contribute to the development tirishga.

The axiological degree is intended to create a system of guidance and attitude assessment in the use of Computer Science in the future professional activity. The creation of a creative and technological environment in which the resources of society and the individual are combined serves to show interest in a specific direction of computer graphics, to give opportunities such as self-determination and self-awareness.

Computer graphics not only gives certain knowledge in this field, but also reveals creative, visual, design, technical, engineering, design abilities, creates creative qualities that can effectively solve standard and non-standard tasks in the creation of " virtual world".

The study of different types of computer graphics - from rastr to Interactive-also plays an important role in the development of students ' cognitive activity through the development of technical modeling tools and methods.

Technical, project thinking, formed in the mastering of computer graphics will have a general scientific significance, and the skills, abilities and methods of activity that have been mastered in the course of its study will have a general intellektual education, a scientific character in science and will be included in the most important powers of modern man.

The level of procedural activity includes the principles, methods, tools and forms of organizing the educational process in computer graphics. The methodology under consideration is based on individual-oriented and authority-based approaches.

The basis of the level of procedural activity is the didactic principles of Science, Visualization and individualization (the direction of individual education of students).

The principle of science is based on the logical link between its content and the subject, and the content of the subject of study allows students to get acquainted with scientific facts, concepts, laws, theories of all the main sections of the relevant science, to reveal its modern achievements and prospects for future development. This principle provides for the development of learning skills and research skills in the audience. This is achieved by introducing into the educational process elements of problematic practical work, observation of events, recording and analysis of the results of

observations, conducting scientific discussions, proving their point of view, teaching skills of rational use of scientific literature.

The application of the scientific principle is important in the study of computer graphics, since this science is a very young science, the terminology hardware has not yet been developed. The current state of Education highlights the problems of integrating information technology and mathematics, creating a mathematical base of the department and course for a wider and more complete training of specialists, and transferring computer graphics from a simple science category to a full scientific category with a mathematical basis.

The principle of individualization (individual educational tray of the audience), that is, the fundamental feature of education, the compatibility of the audience with the needs of knowledge, is also important in the use of Information Technologies. At the same time, this principle sets certain criteria for the psychological needs of the student, among which there is a high motivational need, attention to the achievement of the goal, the desire for self-development and self-correction, and the content of practical training should correspond to internal personal needs. The implementation of this principle means that students perform creative independent work by achieving "the limits of their education", which not only understands certain knowledge, but also goes beyond the basic level of educational content in the process of free choice of information received.

The interaction of "teacher-shogird" is carried out within the framework of the equipment and creative components that create a creative and technological environment, are connected with the generality of interaction and ensure the achievement of the effectiveness of the educational process, taking into account the individual preferences of students. The components of the equipment are computer, computer graphics software, methodical support, etc. Creative component real project implementation, individual study of changing project elements is characterized by the ability to conduct a presentation of the student portfolio.

The list of relevant training tasks that require attention in practical training is very large. Knowing the requirements of the modern student, the labor market and employers, the teacher puts high demands on the development of the content and sets future goals: the computer graphics industry should have the ability not only to know" how, but also to solve certain tasks in this area, for example, to design a website, to create advertising. poster and others.

In order to fill vacancies in the field of computer graphics in the conditions of a rapidly developing market economy, candidates will be given the following requirements: thinking, creative thinking skills and the availability of a portfolio of completed work in various areas of computer graphics. Therefore, the practical needs of the students are forced to develop and introduce new components into the model of the appropriate teaching methodology.

In order to organize the interaction of the" educator – educator", educational means that allow to increase the volume of educational information transmitted, including the objects under study, phenomena, improve their perception; formation, cataloging the system of knowledge; development of students ' creative abilities; creation of individual trailers of the study of the subject of Education; increase the culture of pedagogical labor, etc., play an important role.

In view of the significant area of computer graphics, the study plans of the general concepts of Basic (Extended) Learning elements a. V. It was determined on the basis of the general method of solving the problems developed by Usova. For example, geometric project elements, which are often encountered in the use of software in the teaching of two-dimensional

graphics, geometrical actions on the subject, modifiers of the obyekt forms, tools for ensuring the accuracy of construction are classified into cabs. It is usually limited to specific tasks, but at the same time some of them can have a wide range of features.

On the basis of the classification, the training elements that can be used in the review of any vector editor are distinguished and the position is determined. Taking into account the content of the study of the two-dimensional graphics editor Corel Draw program, it is possible to divide the educational elements into the following and determine their positions.

- **geometric constructor:** circle, rectangle, ellipse, arc, sector, Polygon, net, spiral, curved lines, text, etc.
- **geometrical operations on objects (editing methods):**
- selection of objects, copying, deleting, rotating, reflection, masking, filling of the object, contour of the object, interactive tools for creating and imitation of 3D objects, etc.;
- **accuracy:** meters, units, layers, grid, guide, General, fastening, style, pattern, etc.;
- special effects and features: perspektiv, lens, powliplip, extrusion, etc.

If at one axis of the following graph there are training elements in a horizontal order, and in the other forms of training activity, the intersection gives the following methodical elements.(Table 1)

Table 1. Methodical elements

	1-training element	2-training element	training element	4-training element	....
Theoretical material	Structural and logical scheme of the study				
Practical and laboratory work	Image formation algorithm				
Control	Evaluation criteria				
Self-control	Self-assessment				
Independent study	New software product development algorithm				

According to the line" theoretical material", we have a series of study of the theory: 1-3 teaching elements, etc.

The" laboratory and practical work " line is an image formation algorithm that can be used in the implementation of a training project. Each project is reviewed on the basis of educational elements: the use of some kind of geometrical pyrimetives and editing techniques, some kind of special effects should be applied in support of the accuracy of the project.

For example, the tasvirini forming algorithm of a vector two-dimensional graph according to the training elements is formulated as follows:

a) selection and creation of primitives from geometrical objects;

b) performing geometric operations with objects;

c) application of tools to ensure accuracy;

d) application of special effects;

e) general image adjustment.

3. The training elements in the" control " bar provide criteria for assessing educational projects. For example, for Vector three-dimensional graphics, it is recommended to conduct a visual assessment of the educational project on a system of 100 points, after which the points can be distributed according to different criteria (elements of education) as follows:

- **geometry** (0-20 points): all objects on the stage must be created, the dimensions of the objects must be proportional;
- **Material** (0-20 points): material must be distributed to all objects;
- **lighting** (0-20 points): it is necessary to adjust the lighting and give optimal results;
- **cameras** (0-20 points): the camera setting should be done and give optimal results, the angle of the scene should be such that to maximize the viability of the scene objects and materials;
- **visualization** (0-20 points): visualization should be as close as possible to the given plot.

- **individual component** (additional 0-20 points).

The "Self-Monitoring" section lists the criteria for student self-assessment of educational projects.

The "Independent Study" series provides an algorithm for developing new software products in this area.

Learning elements allow you to understand each new software. Positioned learning elements help to overcome psychological difficulties in learning a new program. When you look at a lot of buttons and built-in menus while studying software, you get the impression that "this program must be very difficult to learn." The resulting psychological discomfort can not only hinder learning, but also lead to negative motivation. The Knowledge Network learning elements help the student in such situations.

The reflexive-evaluation level of the model of teaching methodology of university students in computer graphics determines the readiness of the specialist for future professional activity, it can be determined by the following levels: low, medium, high.

In the process of studying computer graphics, a portfolio of educational projects that will be taught has also been created and its importance for all participants in the process of training and using personnel in the modern labor market has been mentioned.

Thus, the design of teaching methodology in computer graphics is based on the interdependence of each other in the educational process and the interdependence of several components associated with the corresponding methods, forms and development of didactic teaching aids aimed at the formation of professional skills and the development of professional creativity, taking into account the individual preferences of the student, as well.

REFERENCES:

1) Tarasova N.M., Grigoryeva O.D. Elektivniy kurs «Компьютерная графика» [Текст] / Н.М. Тарасова, О.Д. Григорева // Материали республиканского форума физиков «Физика и окружаюший мир», посвяшенная Международному году физики и 5-летнему юбилею ФТИ ЯГУ. – Якутск: изд-во ЯГУ, 2005. – 185 р
2) Rakhmonkulov F.P. Usarov S.A “Organization of practical and laboratory activities in the educational process” European Journal of Research and Reflection in Educational Sciences Vol. 7 No. 12, 2019 ISSN 2056-5852 539-547-p
3) Tangirov Kh. E. The use of electronic educational resources for individualization in the process of teaching algebra in schools // European Journal of Research and Reflection in Educational Sciences. Progressive Academic Publishing, UK. 2019, Vol. 7, No. 3, - pp. 43-48
4) Tangirov Kh.E. Rakhmonkulov F.P. Musurmanov U.A. “Methodological instructions on laboratory work on computer graphics in the Adobe Photoshop program”, Methodical guide. – Jizzakh “Sangzor” 2019, 100-p
5) Tangirov Kh, Rakhmonkulov F.P. Rakhmatov A.SH. “The main technologies of creating electronic means of teaching” Актуальние научние исследования в современном мире: XIII Междунар. научн. конф., 26-27 мая 2016 г., Переяслав-Хмельниский. // Сб. научних трудов - Переяслав-Хмельниский, 2016. - Вип. 5(13), ч. 4. – С. 108-112.