World Bulletin of Social Sciences (WBSS)
Available Online at: https://www.scholarexpress.net
Vol. 4, November - 2021
ISSN: 2749-361X

PECULIARITIES OF THE USE OF COMPUTER TECHNOLOGIES IN TEACHING ENGINEERING GRAPHICS

Z. Ruzimurodova, master
D.K. Mamatov, Associate Professor, Ph.D., Supervisor
Bukhara State University

Article history:

Received: September 26th 2021
Accepted: October 28th 2021
Published: November 30th 2021

Abstract:

The main purpose of teaching computer graphics in school in the article is to teach students the order and rules of computer-aided drawing of graphic information, such as drawings, diagrams and schemes, performed in the disciplines of drawing and engineering graphics. The main task of "Computer Graphics" is to provide students with the knowledge and skills necessary for the free performance on the computer of design and creation of models of technological processes using practical and operational programs and ready-made packages

Keywords: Computer graphics, teaching, student, drawing, engineering graphics, science, drawing, diagrams and schemes, operating program.

Student activism and independent thinking problems are one of the didactic roots of the practice. If pupils and students are not active and do not have spatial imagination, the teacher's activity will be meaningless. The development of teaching methods should be aimed primarily at helping students to think independently and be active. Computer technology can effectively help students develop free thinking and spatial imagination.

Computer technology and computer graphics can be used to teach descriptive geometry to solve the above problems. The interdependence of these two disciplines allows students to complete coursework, course projects and diploma projects in future subjects using computer graphics. Proper proportions of the use of new pedagogical technologies, traditional teaching methods and computer technology to date guarantee the success of the lesson.

Some scientists mistakenly believe that with the advent of computer technology, some sciences will give way to computer graphics.

It is impossible to study computer graphics without studying descriptive geometry and engineering graphics, because computer graphics applications are developed based on the rules of descriptive geometry and meet the requirements of world standards (eg line types, material definition in sections, etc.). The use of computer technology in the teaching of descriptive geometry and engineering graphics (as a modern means of technical training) and computer graphics in descriptive geometry to show the spatial solution of the problem (determining the intersection of surfaces and other objects) can be applied.

While the use of computer technology helps students to master science more quickly, the use of computer graphics allows students to apply their knowledge independently in practical work with the help of computers. The use of modern teaching equipment is very widespread in the country, and the first of the modern issues of teaching graphic geometry and engineering graphics in the field of vocational education in higher education is the use of computer technology. Because of the great potential of the computer, it can be easily used as a teaching tool in any field, as well as in the field of pedagogy. Nowadays, the traditional teaching process is becoming more and more boring for students.

Teaching drawing on the basis of computer technology creates the following opportunities for students:

- Forms students' spatial imagination. During a simple lecture or hands-on activity, the teacher uses a variety of visual aids to develop students' spatial perceptions. This process is time consuming. When explained using computer technology, spatial views, projections, and vivid images of a plane can be rotated or rotated around an image. This will increase students 'interest in science;
- The text of lectures based on multimedia, electronic guidelines for practical training are very convenient for students to study the subject;
- Dynamic images, in the presentation of color problems, in the solution of the problem, the suitability of its solution makes it easier for students to quickly master the order of work;
- In the study of the theoretical part of the science is explained by means of visual aids (color images, their spatial appearance, dynamic movements);
- The sequence of the theory facilitates students' understanding;

World Bulletin of Social Sciences (WBSS)
Available Online at: https://www.scholarexpress.net
Vol. 4, November - 2021
ISSN: 2749-361X

- The step-by-step sequence of solving the problem and the completion of the task on the computer leads to independent work of students;

In general, students' independent thinking can be divided into two main components as a system:

- content (knowledge, understanding or acceptance and presentation);

speed (various activities);

- out come (new knowledge, decision-making methods, new social experience, ideas, views, abilities and qualities of the person). There are two main types of independent cognitive activity of students in the use of computer technology:

- to provide students with ready-made knowledge, ready-made samples on the basis of the solution of creative problems for the correct, thematic, intellectual and practical activity;

- to give students special and individual issues for independent work.

Many didactics, psychologists and methodologists have been involved in the formation of students' independent thinking (perception). I. Lerner, N. Polovnikova,

M. Mirzaeva, K. Olimov, K. Ishmatov have achieved significant results as a result of fundamental research, theoretically developed ways to solve the problem of moving the level and indicators of independent thinking from one level to another. G. Shukina analyzed the process of interest in thinking and taught that independent thinking depends on the level of development of interest in thinking.

An e-textbook or textbook in the broadest sense is a new generation of information, a wide range of educational information (music, voice, text, image, multimedia) understand the didactic system. The e-guide is based on a special script. Such a didactic systematic e-learning course was created by the author of this dissertation and is being tested in some schools of Bukhara region and Bukhara State University. Below we will talk about the components of an electronic textbook from drawing.

The electronic textbook is accompanied by music.

Music is a separate component of the electronic textbook, which is an art form that actively affects the human psyche, reflecting the objective reality in sound and artistic images.

Music is a delicate art that can accurately and convincingly depict the emotional state of man, the being in nature. Therefore, just as there is no play, film, radio show, or television show without music, the music that matches it is chosen based on the topic and content of the electronic textbook.

Text - each electronic textbook, of course, should be provided with the appropriate text, in which the definition of scientific concepts that the student learns should be concise and concise, a description of the basic concepts that should be mastered under the headings related to each paragraph need Because as soon as the student begins to read the relevant paragraphs, his eyes fall on the list of concepts.

Therefore, before beginning the list of concepts, it is necessary to give signs such as "Remember the definition of these concepts", "Pay attention". These gestures direct the reader to the definition of the basic concepts given in the text, expressed in the same color.

The word Sukhandon is used in e-textbooks for any subject, but the word Sukhandon should not repeat the text exactly.

If a student does not understand a word at a time, he or she should be able to hear it again.

Video imaging is one of the most important components of any electronic textbook. Images can be made in two or different colors, it reveals the essence of scientific and other concepts in the text, ensures the compatibility of the text with the exhibition and meets

all the technical and didactic requirements for visual (illustrative) materials included in the textbook. 'should be. Each image must be placed on a page of text, otherwise the reader may be distracted.

The most important characteristic of e-textbooks is the presence of movement, otherwise it may not differ from an ordinary textbook.

The action (animation) is performed using multimedia, animation methods. Visual processes, such as the motion of a piston in an internal combustion engine cylinder from physics, day-to-night rotation from astronomy, or projection methods from drawing, cuts and shears, and image-switching, need to be demonstrated, especially in multiplication.

Cartoons are a way of showing events and processes by gradually breaking the action into pieces and stopping the frame if necessary, which can be compared to a cartoon.

The advantage of this method is that the essence of a process can not be expressed in words, that is, it is easier for students to understand abstract concepts.

Thus, the e-textbook is a modern didactic system that combines music, text, words, color images, multimedia, as mentioned above. However, this does not mean that all components should be included in such a textbook. Because it can be divided into several types, such as text reference or animated electronic

World Bulletin of Social Sciences (WBSS)
Available Online at: https://www.scholarexpress.net
Vol. 4, November - 2021
ISSN: 2749-361X

versions of school textbooks, but according to some authors, the electronic version of a traditional textbook should not be understood as an electronic textbook.

All types of e-learning courses are characterized by three main features.

1. Divide the study material into smaller sections (paragraphs that contain a certain amount of information and are logically arranged), not to move on to the next section without knowing the previous section.

2. At the end of each paragraph, test questions are asked to determine how well the student has mastered the material, so that the student can answer the question quickly, otherwise he or she will not be able to master the information in the following paragraphs.

3. The student should be able to test the correctness or incorrectness of the test question immediately after answering it, so that the questions reveal the true meaning of the information. to draw conclusions, in other words, the student must receive signals from the computer about his knowledge and control his actions in this way in order to consciously acquire his knowledge and skills.

Depending on the nature of the interaction between the student and the computer, the e-learning course can be divided into types that provide information, control through question-answer tests, and include direct and feedback channels. Teachers who view the computer as an additional technical means of education, a source of information, should be well aware of these features.

In fact, it has a communicative character ("look","learn", "remember", "speak"). At present, the student uses most of the subjects, mainly only textbooks, with no other source of educational information.

With the freedom to search for information (reading, working on the text, access to other sources of information, etc.), the e-textbook differs from traditional textbooks. Therefore, depending on the above features of the e-textbook, it is considered as an interactive means of education.

In some subjects, the school textbook is written in a linear manner. This means that, for example, as the text on the first page is not repeated on the second page, the information is placed in sequence, they are not repeated. In the e-textbook, the learning materials are presented in a concentric manner in specific control blocks.

In a concentric textbook, individual parts of the textbook can be referred to more than once. This, of course, does not mean repeating the past, but deepening it in a complex way, activating the knowledge and skills acquired in students.

An e-textbook differs from a traditional textbook in its interface.

Every teacher may have a legitimate question about what subjects and to what extent e-textbooks can be used. An e-textbook should be made up of most of the subjects taught in school, especially drawing.

Because, depending on the nature of the subject, drawing is in great need of demonstration, that is, the development of abstract thinking.

However, no e-textbook can replace the teacher, because no technical means of live communication between teacher and student can be provided.

Elementary students are based on a clear idea in the learning process, while in the upper grades they are

based on an abstract idea. In abstract thinking, the knowledge of the world, the essence of physical and chemical processes is explained to students on the basis of specific models (crystal lattice, electric charge,

current, voltage, molecule, atom, etc.). Therefore, it is difficult to convey the above processes to the mind of the reader without computer technology. However, this does not mean that e-textbooks are required for all subjects. An e-textbook can cover a full course of a subject or include a multimedia version of some material that is needed to clarify abstract thinking.

An e-textbook is not a manual that flashes on a computer screen and is read aloud by Sukhandon.

A distinctive feature of any e-textbook is:

- Ensuring feedback in the learning process (the flow of information from the computer to the student is called direct communication, the information entered into the computer in the acquisition of educational material is called feedback);
- Possibility of individualization of the educational process;
- increase the visibility of the educational process;
- the ability to search for information from various sources;
- the ability to model the process or event under study;
- can be used in group and individual teaching;
- The breadth of opportunities to test students in education;

World Bulletin of Social Sciences (WBSS)
Available Online at: https://www.scholarexpress.net
Vol. 4, November - 2021
ISSN: 2749-361X

- Availability of interactive methods and techniques of teaching.

In conclusion, the use of computer technology in the teaching of drawing enhances students' cognitive

abilities, motivation for innovation, and develops their spatial imagination and creative thinking skills.

REFERENCES

1. Аминов, Акмал Шавкатович, et al. "ПРОБЛЕМЫ ОРГАНИЗАЦИИ САМОСТОЯТЕЛЬНОЙ РАБОТЫ СТУДЕНТОВ В ВЫСШИХ УЧЕБНЫХ ЗАВЕДЕНИЯХ." *European science* 2 (58) (2021): 77-79.
2. Шукуров, Аваз Рузибаевич, et al. "МЕТОДИКА ИСПОЛЬЗОВАНИЯ КОМПЬЮТЕРНЫХ ПРОГРАММ НА УРОКАХ РИСОВАНИЯ В СРЕДНЕЙ ШКОЛЕ." *European science* 2 (58) (2021): 47-50.
3. Mamatov, Dilshod. "PROJECTS OF MAKING CLAY AND PLASTIC TOYS IN PRE-SCHOOL EDUCATION." *Theoretical & Applied Science* 9 (2019): 281-285.
4. MAMATOV, D. The Role of Computer Gaphics in Developing Students Space Imagination. *JournalNX*, *6*(10), 304-309.
5. Djalolovich, Yadgarov Nodir, et al. "IMPROVING THE PROFESSIONAL TRAINING OF FINE ART TEACHERS." *European science* 2 (58) (2021): 44-46.
6. N. Dj. Yadgarov, Ph. D. , Associate Professor Bukhara - open-air museum // Oriental Art and Culture. 2019. №IV (1). URL: https://cyberleninka.ru/article/n/bukhara-open-air-museum (05.01.2021).
7. Yadgarov N. D., YAdgarov D. D. Dizajn sozdaniya komp'yuternyh animacionnyh modelej po nachertatel'noj geometrii //Teoriya ta praktika dizajnu.– 2012. – №. 1. – P. 197-200.
8. Adilkhodzhaev A.I., Umarov K.S., Kadyrov I.A. (2020). Some features of the rheological properties of cement pastes with zeolite-containing fillers. *International Engineering Research and Development Journal* , *5* (CONGRESS), 4-4.
9. Botirov, Jahongir Sobirovich, et al. "The same goes for art classes in private schools specific properties." *Journal of Contemporary Issues in Business and Government* 27.2 (2021): 1643-1650.
10. Азимова, М. Б., Азимов, Б. Б., & Тухсанова, В. Р. (2021). ИСКУССТВО РОСПИСИ ТКАНЕЙ. *European science*, (2 (58)), 41-43.
11. Ширинов, А. Л., Батиров, Д. С., & Шомуродов, О. Н. (2021). ВАЖНОСТЬ ЦВЕТОВЕДЕНИЯ В ИЗОБРАЗИТЕЛЬНОМ ИСКУССТВЕ. *Наука и образование сегодня*, (5 (64)), 83-85.
12. Odilova, M. O. "Improving the pedagogical potential of biology teachers using computer programs." *International Engineering Journal For Research & Development* 5.9 (2020): 4-4.
13. Odilova, Mahfuza. "DROUGHT AND SALINITY RESISTANCE PROPERTIES OF SORGHUM BICOLOR." *Збірник наукових праць ΛΌГОΣ* (2021).
14. Авлиякулов, М. М., Собиров, Т. Р., Бадиев, М. М., & Азимов, С. С. (2021). ОБЩИЕ ЗАКОНЫ КОМПОЗИЦИИ В РЕЗЬБЕ ПО ДЕРЕВУ. *European science*, (2 (58)), 32-34.
15. Остонова, Г. Р., Ибадуллаева, Ш. И., Мусинова, А. С., & Авлиякулова, Н. М. (2021). ДИДАКТИЧЕСКИЕ ПРИНЦИПЫ ОБУЧЕНИЯ ИЗОБРАЗИТЕЛЬНОМУ ИСКУССТВУ В ОБЩЕОБРАЗОВАТЕЛЬНЫХ ШКОЛАХ. *European science*, (2 (58)), 104-106.
16. Nazarova S. M., Zaripov G. T. GENERAL PHYSICAL PROPERTIES OF IRRIGATED GRASS SOILS OF BUKHARA OAZIS AND WAYS TO IMPROVE THEM //Scientific reports of Bukhara State University. – 2020. – Т. 4. – №. 3. – С. 66-69.
17. Бадиев, М. М., Собиров, Т. Р., Авлиякулов, М. М., & Азимов, С. С. (2021). АНАЛИЗ ОБРАТНЫХ ЗАДАЧ В НАЧЕРТАТЕЛЬНОЙ ГЕОМЕТРИИ. *Наука и образование сегодня*, (5 (64)), 76-77.
18. Сулаймонова, Мухиба Болтаевна, et al. "ДОСТИЖЕНИЕ ЭСТЕТИЧЕСКОЙ И НРАВСТВЕННОЙ ЗРЕЛОСТИ ОБУЧАЮЩИХСЯ ИЗОБРАЗИТЕЛЬНОМУ

World Bulletin of Social Sciences (WBSS)
Available Online at: https://www.scholarexpress.net
Vol. 4, November - 2021
ISSN: 2749-361X

ИСКУССТВУ." *European science* 3 (59) (2021): 53-56.

19. Mamurova D. I., Ibatova N. I., Badieva D. M. THE IMPORTANCE OF USING THE KEYS-STADI INNOVATIVE EDUCATIONAL TECHNOLOGY METHOD IN TRAINING THE IMAGE MODULE OF GEOMETRIC SHAPES //Scientific reports of Bukhara State University. – 2020. – Т. 4. – №. 1. – С. 335-338.