IN THE DEVELOPMENT OF DESIGN AND TECHNOLOGICAL COMPETENCE METHODS FOR USING AUTODESK SKETCHBOOK, NANOCAD, MARVELOUS DESIGNER

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ABSTRACT

This article describes how to use Autodesk Sketchbook, NanoCAD, Marvelous Designer software for the development of design and technological competence in the process of preparing future vocational education teachers.

Keywords: Design, technology, competence, graphics, Autodesk Sketchbook, NanoCAD, Marvelous Designer.

INTRODUCTION

In the development of design and technological competence of the future specialist, knowledge is acquired in theoretical trainings, skills and skills in practical and laboratory studies, so practical and laboratory training is important in the development of design and technological competence. Labs are one of the forms of organization of the educational process, where students complete a set of learning tasks under the guidance of a teacher. The aim of the laboratory classes is to make students master the scientific and technical bases of the subject, acquire skills and skills through creative activity, and use modern techniques with the help of technical means. In laboratory studies, students are well aware of the learning material as there are many calculations and formulas in the lab that students have never done before. In the use of written explanatory documents, the teacher in the introductory instruction only outlines the purpose of the assignment and then gradually explains the requirements for its implementation. Students can learn independently based on the sequence of tasks and instructions on how to complete it. The teacher will have the opportunity to devote time and assistance to students who are not well trained. It can monitor student work, work done correctly, and students' understanding. Methical instructions for laboratory work will be developed, which will include: the purpose of the work, the theoretical information necessary for performing laboratory work, the requirements for the results, the assignment. When designing clothing details, students use their lecture notes, methodological recommendations, and computer programs for lab work.

Analyze of referenced literatures

Computer designing of clothes is also an innovative form of education that has long been in the educational system.

The main advantages of computers are their convergence, simplicity of communication and, of course, graphic capabilities. The use of computers by specialists in designing a wide range of products, including garments, plays an important role. The practical application of computer-aided design and training of skilled personnel in the light industry will promote industrial development and increase their competitiveness.

Computer-aided design can be used successfully in various areas of the economy, for example, it is useful in analyzing the component details of a product and its virtual appearance. [1]

Computer-aided design is widely used in design work around the world, and teaching computer-aided design principles in the education system is critical to the training of competitive professionals. Special computer programs allow you to create, edit and move images. Thus, using a mouse on a computer screen, a person can draw a picture (sketch, drawing) on paper with a pen or pen. These are graphics programs or graphic editors that allow you to control your drawing (sketch, drawing) elements.

Due to the rapid development of computer designing and updating both technical and software, there is a need to constantly develop this course and to learn new directions in this field. Much progress has been made in this area in recent years. Tens of millions of color polishes, scanners for graphic information, and graphic workstations have emerged in recent years. [2] As a result, there have been programs in computer software that can portray real-world realities. Modern graphic design on personal computers is widely used in project research and data analysis, to better illustrate the results, and to prepare presentations. Studying of theoretical and methodological bases of computer designing, as well as practical skills and abilities depends on the knowledge acquired in "Computer Graphics", "Engineering Graphics" and other disciplines.

Research methodology
In the course of our research, we developed a method for designing and modeling clothes using the Autodesk Sketchbook, NanoCAD, Marvelous Designer software, which has been used in the manufacturing sector but not yet implemented in the educational process. For these purposes the following tasks have been set:
       - studying computer graphics tools;
       - learn about Autodesk Sketchbook, NanoCAD, Marvelous Designer and learn how to use them in designing clothes;
       - development of design skills through these programs during laboratory classes;
       - development of design and technological competence of students by directing them to independent and practical activities.
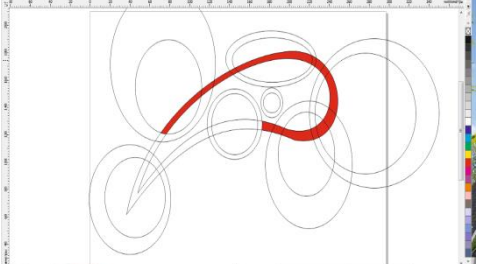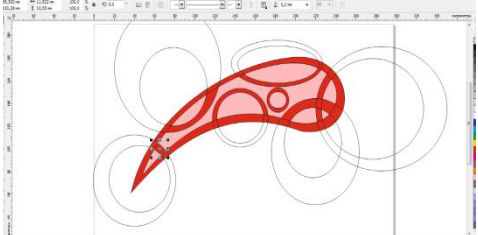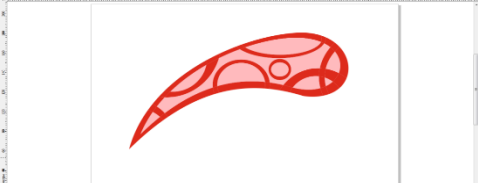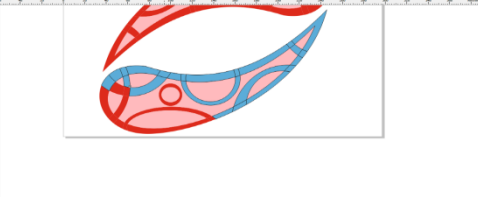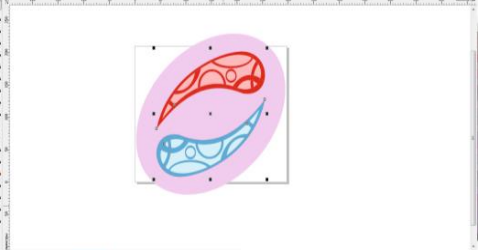
Autodesk Sketchbook software allows you to design a variety of graphic images, work on photo text and images, especially editing composition in art
Analyze and results
In designing clothes we used Autodesk Sketchbook to create different logos, patterns, brand styles.
As an example, let's look at the technological map of placing different patterns and logos in the finished model. (Table 1)

Table 1: Methods for working with Autodesk Sketchbook

№	The order of the operation	Graphic view
1.	Using the intersection of the geometric shapes on the toolbar, you can create the desired shape. The resulting shape is selected by color, and from the color selection menu, the color is applied via the cystic tool.	
2.	With a cyst, a background color is selected for the shape.	
3.	The auxiliary lines are removed.	
4.	To draw the shape of the desired logo, the form is copied by performing the "copy" operation. Color is given to the newly formed form.	
5.	The shape is given the desired color and the shape is leveled and finalized.	
6.	The model to be signed in is selected and placed on the home screen.	
7.	The finished logo is placed on the model where it is needed and removed from the excess lines.	

The NanoCAD software is an advanced form of AutoCAD software, which can be used to construct and model the foundation of clothes. This program is widely used in designing clothes in the manufacturing sector.

CONCLUSION

Constructor-technological competence is reflected in the design and technological activities, where professional and pedagogical orientation is of great importance. This activity includes the choice of teaching methods and methods of specialization subjects, the creation of teaching and didactic provision. Much of the teaching and didactic provision consists of a variety of educational tools, well-executed drawings, schemes, and drawings. That is why modern computer programs are one of the main didactic tools in the organization of vocational education today and serve to develop the constructor-technological competence of future vocational education teachers.

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