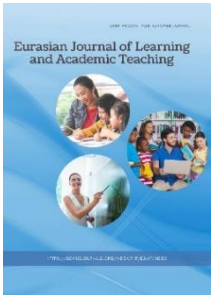

Methodical Recommendations for Developing the Design Competence of Future Drawing Teachers Through the AutoCAD Graphic Program

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ABSTRACT

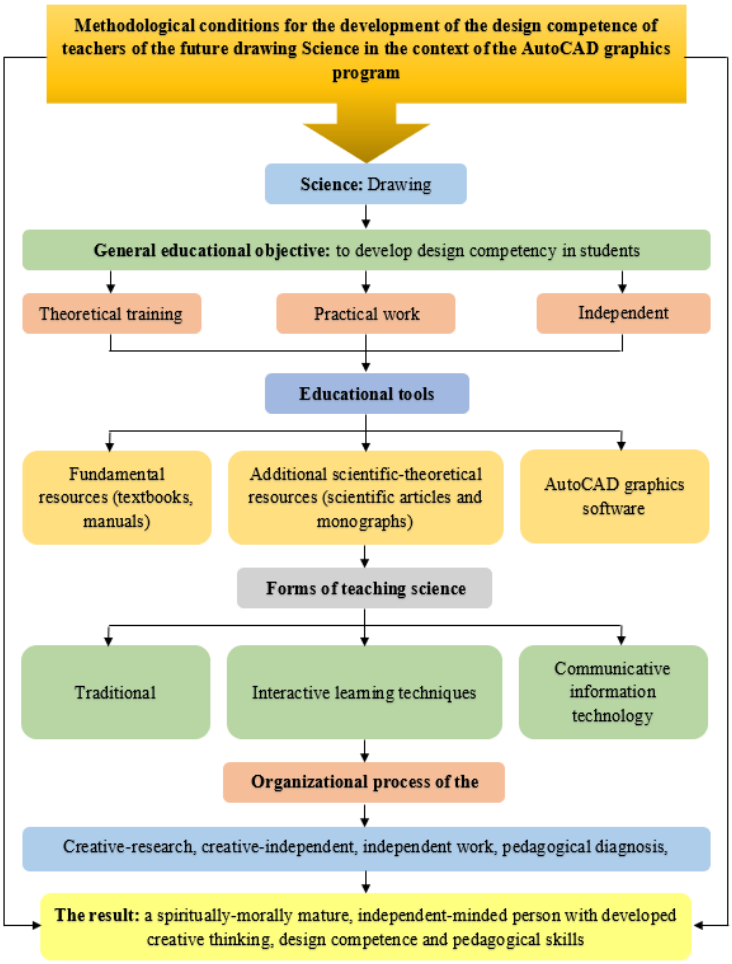
In this article, the basic information about the methodology for the development of the design competency of future drawing science teachers in the new generation of AutoCAD graphics software is provided. It was written on the basis of the results of research carried out by pedagogical scientists on the development of spatial imagination and thinking of future teachers, as well as design competence.

Keywords: drawing, design, graphic program, compensation, spatial-geometrical, spatial imagination, spatial thinking, methodical system, computer graphics, projection

Introduction. It is known that the science of drawing plays an important role in the development of students ' spatial imagination and thinking, as well as design competence. Because this science is inextricably linked with spatial processes, the mastering of educational science through spatial-geometrical images helps students to develop competency in cognitive activities, imaginary images, imagination and thinking, and with the help of them the design of students.

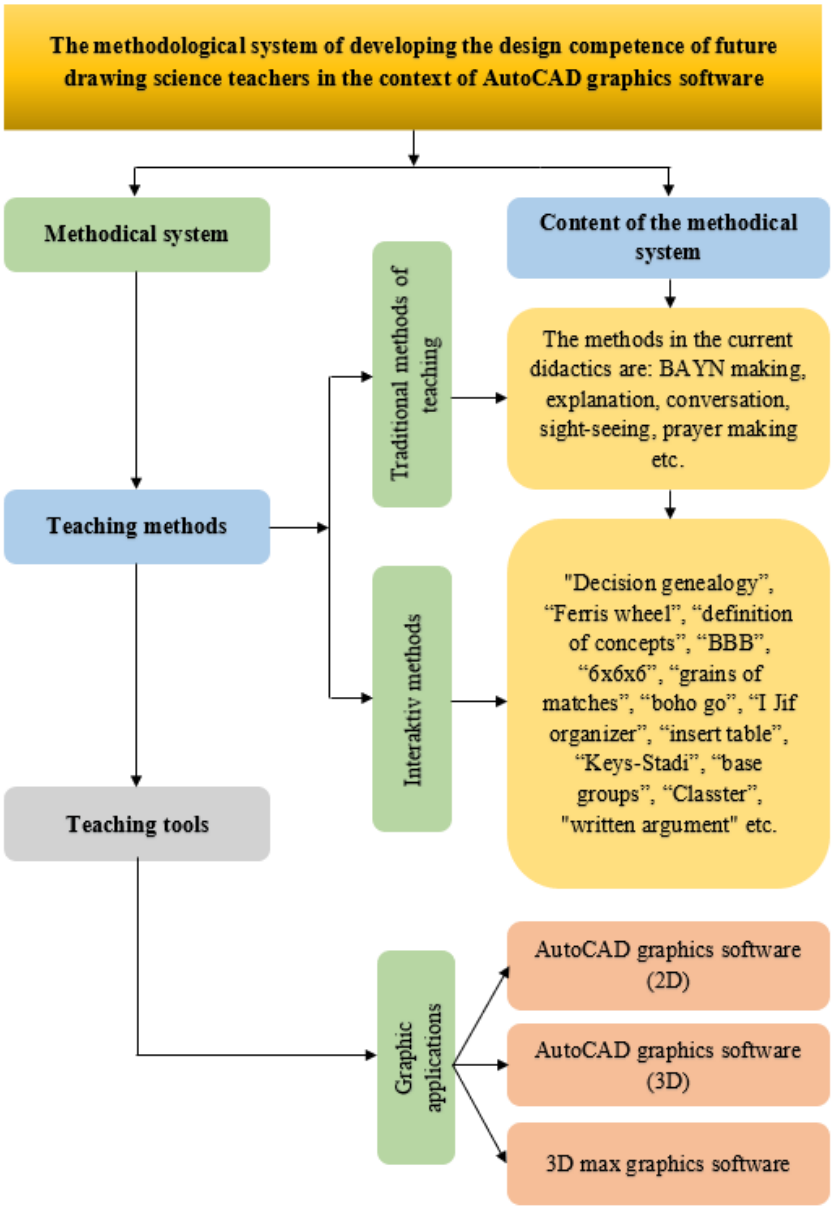
Therefore, by teaching the science of drawing in the tool of the new generation of AutoCAD graphics software, it will be possible to train the skills of ingenuity, entrepreneurship, creativity in combination with the development of design competence in students.

Taking this into account, in the process of our research, we have developed the methodological conditions (methodological structure design) for the development of the design competency in students by teaching the science of drawing through the new generation of AutoCAD graphics (Picture 1).



Picture 1. Methodical conditions for the development of design competence in students

The work on the development of the competency of the students in the design of science has been applied to the process of teaching and extracurricular work such as traditional, advanced pedagogical theories, the use of graphic programs used in the Universities of the Republic [1]. For this purpose, in the practical direction of our research work "methodological system of the process of teaching drawing science "was developed in the development of students ' design competency through the AutoCAD graphics program. This system is represented in the following form (Picture 2).



Picture 2. Methodical system for the development of student design competency

When analyzing existing textbooks and manuals from drawing, it became clear that in most of the existing textbooks, drawings and pictures were created in black and white images, from drawing to electronic textbooks that meet the modern requirements in our republic, very little was created. In our republic, the methodology of teaching drawing science on the basis of graphic programs has not yet been developed.

Literature analysis. In the research work of Professor Narzulla Muslimov, the scientific and methodological bases of formation of professional pedagogical qualities are studied, as well as special attention is paid to the issues of formation of specialists of the new generation, morally mature, having an independent worldview, educating and bringing up a harmonious person who is creative thinker, loyal to Universal and national values [2].

Pedagogical scientist Shavkat Sharipov developed the theory and practice of ensuring continuity of professional creativity of students, scientific-pedagogical bases of development of inventive and creative abilities of students [3]. Dilshod Mamatov in the

teaching of drawing science developed the scientific and methodological foundations of the development of spatial imagination of students and showed ways of application to the practical process. The sum and conditions of the factors providing the process of developing the personality of the teacher of drawing science were determined and the content was revealed [4].

Research methodology. The most important aspect of graphic activity in the process of teaching drawing science is students ' spatial imagination and thinking and designing ability. Consequently, such adjectives are formed in the process of spatial transformations of different degrees, looking for their solutions, and some can not perform tasks without determining the order of solution of the issue.

The organization of classes using technical means in the ATM is a topical issue of the current educational reform. In particular, the pro-linear drawing Department of drawing science provides students with an active spatial imagination and vision. Because premutation is a complex process that is invisible to the eye, it can not be understood verbally. In this regard, we will dwell on the use of the capabilities of the new generation of AutoCAD graphics software in the process of teaching drawing Science in OTM.

The computer equipment is able to display graphic actions performed in the process of changing images with the help of animated images, thereby facilitating the easy mastering of abstract concepts by students and increasing the effectiveness of the educational process.

At present, very high demands are placed on the educational process. One of these requirements is the effective use of Information Technology and e-learning resources in the course process. But the practical and theoretical basis for the use of Information Technology and electronic hands-on in the course of engineering graphics in higher education has not yet been fully studied.

If the processes of projection, which can not be seen by eye, are demonstrated on the computer with the help of an animated image, the spatial imagination and the ability to design are developed by the students and contribute to a quick and easy understanding of the essence of the subject.

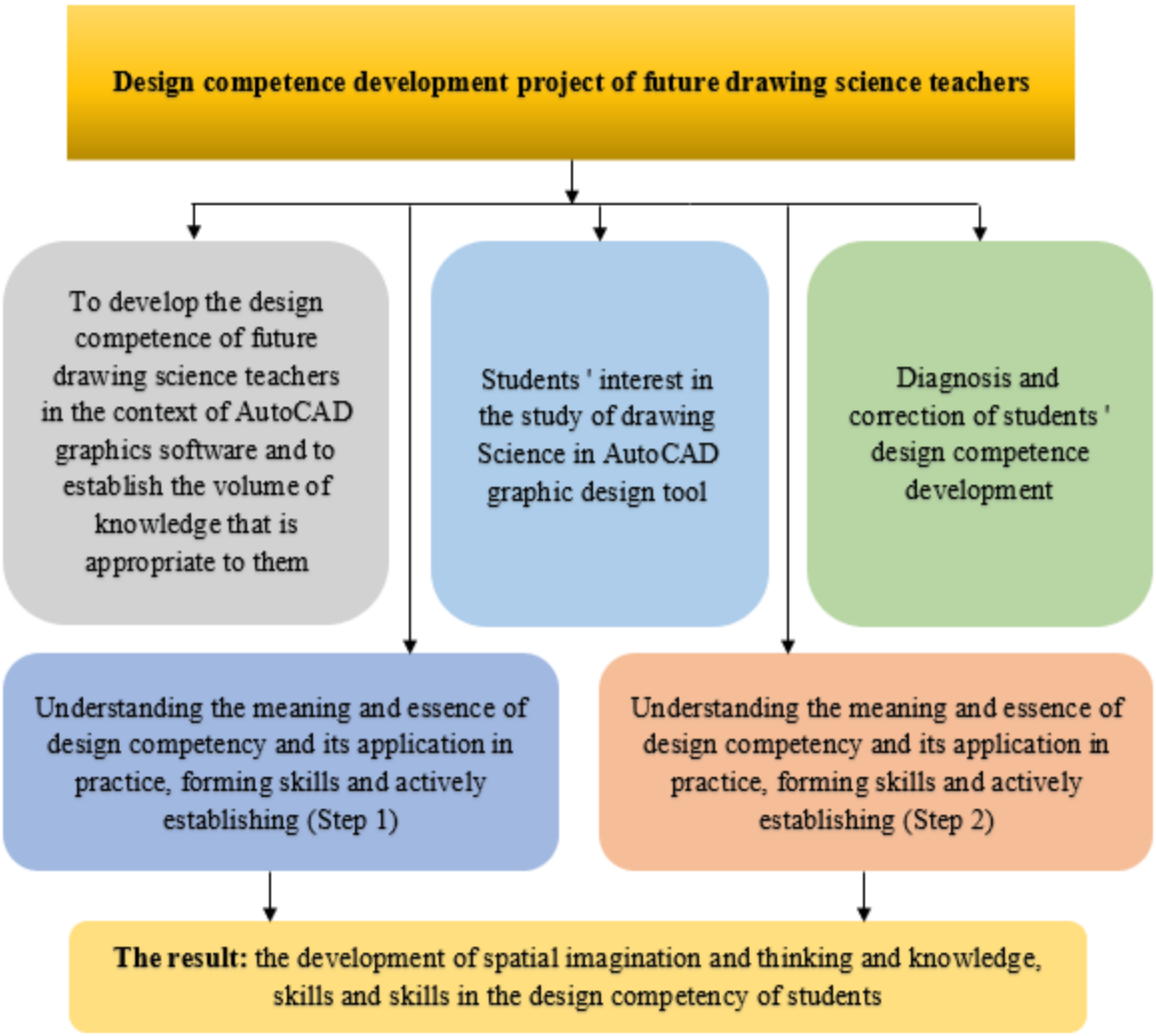
In these images, the difference between the appearance of the projection and the fact that it is possible to use six views, if necessary, to form a spread as a result of a three-way action consisting of three projection planes (V, H, W), the formation of local views was demonstrated in the animated images.

The advantage of computer animation pertaining to videos is that in cases where the essence of a process can not be expressed in words, that is, the abstract concepts are explained by the students to be more easily understood.

For example, from drawing to pro-drawing methods, cutting and scraping, axonometric pro-drawing, etc., topics need to be shown, especially computer animation pertaining to videos. In the computer animated pertaining to videos tool, we have the ability to display these themes in different colors on the screen, in the animated image.

Taking into account these possibilities of drawing Science, in the course of our research, a project for the development of student design competence in Drawing Lessons was developed (Picture 3).

In the educational process, appropriate methods of teaching and learning as well as the structure of the management of the cognitive activity of the educational recipients were determined. On this basis, a list of teaching aids is drawn up. Methods and the system of means of education are harmonized with organizational pictures, that is, technology is developed, educational technology is also from all sentence.



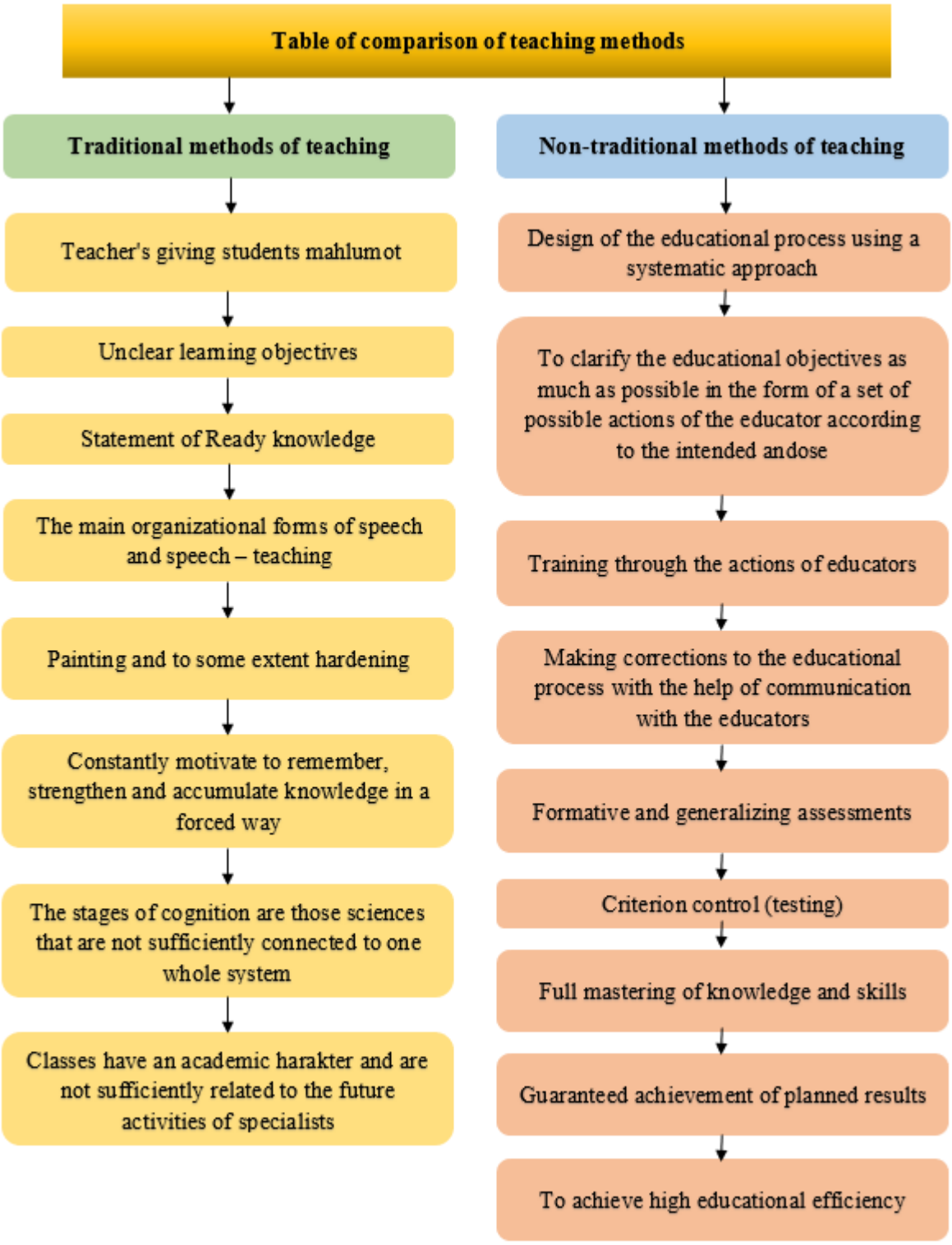
Picture 3. Design competence development project of future drawing science teachers

In the implementation of modern teaching technology, non-traditional teaching methods were compared with traditional teaching in general

(Picture 3). Comparison of teaching methods in Picture 4 shows the advantages of non-traditional teaching method.

It can be concluded from this – that the traditional method of teaching is reshaped and improved by the non-traditional method of teaching (with the use of computer technology) [5].

At each stage of the lesson, there is an opportunity to repeat and consolidate the topics mentioned, a description of new knowledge, practical exercises, to carry out laboratory work partially or completely with the help of direct information technology. And for this it takes skill, a little time and diligence to use several computer programs, that's all. In this way, the teacher achieves his greatest goal, gives quality education to the students, prepares them for a great life.



Picture 4. Table of comparison of teaching methods

Conclusion. Taking this into account, as well as the goals and objectives of our research, we have prepared a methodological guide for the use of the new generation of AutoCAD graphics software in the teaching of drawing science. More than 60 animated shots were included in it. These personnel will be able to ensure the active development of students ' spatial imagination and thinking, as well as design competence. From the textbook published for

the science of drawing in the creation of animated shots on computer graphics, such topics are distinguished that they represent the spatial processes themselves.

After all, relying on AutoCAD graphics software to see the work and perform various training and production tasks on this basis is an important feature of human intelligence activity. The development of student design competence and the skill associated with it are the most important components of graphic activity.

In order for the student to have a clear idea of his drawing about any piece, he must have a clear idea of the geometrical bodies and their interrelation.

One of the main objectives and tasks facing our research is to develop the student's design competency by performing item drawings and illustrative images in the AutoCAD grfaik software tool.

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