ISSN: 2181-1385
Scientific Journal Impact Factor (SJIF) 2021: 5.723
DOI: 10.24411/2181-1385-2021-00828

USING INTERACTIVE METHODS OF TEACHING IN ENGINEERING GRAPHICS CLASSES

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ABSTRACT

The article deals with the usage of interactive methods teaching in the classroom "Engineering Graphics" and the possibilities for the mental development of students.

Keywords: interactive game, educational technologies, work in micro groups, intellectual and creative skills.

INTRODUCTION

Professional development of an adult is inseparable from personal development - these are two interrelated and mutually complementary processes. Forming as a subject of professional activity and forming an attitude towards oneself as a doer, a person develops as a person. Professional development is one of the forms of personality development. Interactive play is an active learning method based on the experience gained as a result of special organized social interaction of participants in order to change the individual behavior model, that is, these are methods that organize the process of social interaction on the basis of which the participants develop a kind of "new" knowledge , born directly in the course of this process, or resulting from it. Most often, these games are used to educate students.

Currently, there is a need to introduce new approaches to the study of general technical disciplines, the introduction of new educational technologies in teaching engineering graphics, in particular. This is due to many reasons. First of all, students have no motivation for the chosen specialty or profession, a vague idea of that. where the knowledge gained in the study of this discipline will be useful.

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METHODOLOGY

In search of ways to solve the problem of enhancing cognitive activity, research and search methods, non-standard forms of conducting classes, didactic games, etc. are used in the classroom. Such training is called interactive.

In the classroom on engineering graphics, various types of student activities are used: individual, work in pairs, micro-groups. Work in microgroups is carried out on the themes of mechanical engineering drawing: "Connections of parts", "Views, cuts, sections". "Assembly drawings". This type of activity allows students to deeply study topics and acquire valuable skills for working in a team:

- form your own point of view, argue and defend it correctly:
- carry out communication in the course of professional activities, including the exchange of information:
- develop a unified strategy of interaction, listen and evaluate opponents, obey the decision:
- be responsible for the results of their activities. Teaching in small groups forms students' independence of thinking, develops intellectual and creative skills.

Using interactive teaching while sketching and exploring the topic "Detailing". the student becomes more of a subject of learning, enters into a dialogue with the teacher, performs creative, problematic tasks.

When using the interactive teaching methodology on the topic "Detailing" occurs:

1. forming, which is associated with mental actions characteristic of the visual perception of a graphic image on a plane (specially selected tasks that students performed on a computer):
2. formation, which occurs in the process of practical constructions on the plane;
3. formation, which is associated with visual perception of a graphic image, while mental and objective actions occur in three-dimensional space.

In the course of detailing, you can solve tasks for the formation of graphic skills (display lines, apply dimensions, build the contours of flat images, etc.). on the development of mental actions (comparing images. reading drawings. building images. imaginary transformations of images, etc.).

Graphic tasks contribute to the solid assimilation of knowledge, they are a means of forming graphic skills, control of knowledge, skills and abilities. In addition, they have great opportunities for the mental development of students.

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RESULTS AND DISCUSSION

They imply not a mechanical application of learned rules, but an independent search for ways to solve some problems - the choice of the main type, the number of images, the use of the necessary conventional images, designations, and the like. The process of solving such problems is an important means of developing thinking. The personality develops the ability to analyze the initial data from different angles, to highlight the main thing, to generalize. make various imaginary transformations of images, a creative direction of thinking is formed.

Interactive activity in the course of detailing involves dialogue, communication between students. Consequently, such an organization and development of dialogue communication leads to mutual understanding, mutual actions, to the joint solution of common, but significant for each student, tasks. Graphic skills are formed, and also during the dialogue, students learn to think critically, solve complex problems based on an analysis of circumstances and relevant information, make thoughtful decisions, participate in discussions, communicate with other people. With the help of a set of methodological techniques, students are led to the need to implement a whole chain of mental transformations, learn to see with their mind's eye, make mental turns of images created in the imagination, which are then embodied in a plane with the help of integrative learning.

The result of a well-organized and effectively conducted interactive method can be a change in the perception of the participants, which leads to a quick, immediate solution or a new understanding of an existing problem. In this case, the emergence of such a new understanding is facilitated by immersion in the process of interaction, which makes it possible to explore the problem from the inside, to pass it through "oneself" to analyze one's own behavior and draw the necessary conclusions.

Engineering graphics is such a subject, in the study of which students get acquainted with a wide range of technical concepts, therefore, knowledge of this discipline facilitates the study of many other general technical subjects. The conditions for successful mastering of technical knowledge are the ability to read drawings and knowledge of the rules of execution and design of drawings. Practical work is a continuation of the lecture topic, then we conduct classes on the interactive method of teaching case studies.

The word "case-study" itself is taken from the English language, since "case" means a case, a situation, a method of active problem-situational analysis, based on learning by solving specific problems, and "study" teaching. In practical classes, an academic group consisting of 25 students subdivides them into 5 subgroups and 5

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people and assign one of them to the senior and give out different topics for each group separately, the goal of the assigned task for the first group as a result of the analysis on the surface of the body of revolution show the methodology for constructing the surface of bodies of revolution of various geometric shapes along two projection planes based on a circle given along the circumference with an arbitrary selected height in other projection planes V. Explain a specific structure, for example. we see a cylinder on three-dimensional projection planes, which is located on a Cartesian coordinate system, and their projection, that is, consisting of three projection planes: horizontal N. frontal U and profile W.

In the horizontal N. projection plane we see a circle of a circle, since a geometric figure is set by two parameters: in length (oh) and in width (0U), that is, the figure is presented in a flat, squashed form, without volumetric visibility. To see a three-dimensional figure. it is necessary to set one more parameter - the height of the geometric figure-0Z.Therefore, to solve this problem, in addition to the horizontal H plane, we will lay at least one more frontal plane V or an arbitrary W projection plane, since without these planes it is difficult to determine the external volumetric view of this figure. During the presentation, students in the drawings if they make minor mistakes, for example, they forget to put the center lines in the horizontal H, frontal Y or arbitrary W projection plane, then the grade decreases, and if the students do not outline the geometric figure with contour lines (8-1mm), then it decreases again , also if you do not put down auxiliary lines (S-0.3mm) and dimensions, for example. p-60mm decreases again and is finally assessed as satisfactory.

CONCLUSION

The analysis of the state of the problem shows that in the modern context of the training of engineering personnel, there are problems associated with the percentage of students mastering the studies in the subject of "engineering graphics. This is explained, on the one hand, by the reduction in the allotted hours for this subject, as a negative factor, and on the other hand, by the introduction of computer technologies in the teaching process, as a positive factor. The above can be stated that the keys to solving the problem under consideration are the use of interactive methods, which allows not only to operate with geometric elements and images, but to connect abstract concepts of the subject with real engineering objects. This is a response to the modern production requirements for higher technical education: the quality of training of specialists, the competence of teachers and the credit system of education that is co-ordinated in accordance with international standards.

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REFERENCES

1. Stupina. S. B. Interactive learning technologies in higher education [Text]: educational methodological guide / S. B. Stupin. - Saratov. 2009.
2. Ekzhanova E.A. Fundamentals of Integrated Learning: A Manual for Universities M. 2008.
3. Ivanova - Komarschuk A. The usefulness of interactive teaching methods [Electronic resource] http: y / osvita.ua / teclmol / 6564.
4. Technique for teaching drawing. Ed. E.A. Vaselenko M-1990