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IMPROVING STUDENTS' RESEARCH ACTIVITIES IN COLLABORATIVE LEARNING CONDITIONS

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ANNOTATION

The article describes the scenario of a business game developed by the author, which creates the integration of technological and procedural approaches in teaching by creatively solving the assigned tasks.

KEY WORDS: *creative co-authorship, technological approach, benchmark results, procedural approach, systems analysis, individual research process, game modeling, stimulation system, originality of ideas*

The new socio-economic conditions for the development of Uzbekistan place high demands on the professional training of a competitive specialist who is capable of:
- Independently navigate the flow of changing information;
- Gain new knowledge and find the best options for its application;
- See prospects and plan strategies for the development of production, education and science;
- Implement and develop innovations.

An important condition for mastering these abilities is the involvement of students in the process of studying at higher educational institutions in research activities based on the creation of a collaborative environment. It is the research work of students that contributes to the formation of interest in educational, cognitive, creative and practical activities, increases educational motivation, creates conditions for social and professional growth, development of interest in the chosen profession, and allows for the development of creative and personal qualities of future specialists.

The educational reforms carried out today in the republic are particularly large-scale, where paramount importance is given to the issues of further improvement of vocational pedagogical education.

The development and implementation of modern pedagogical technologies, and the improvement of vocational pedagogical education is an important factor in the training of professional personnel with mass qualifications. Today, many innovations are being introduced into the education system, and they require an organized, systematic, mass approach to them. Innovation represents a long-term investment in the future. The innovative ability of the education system in Uzbekistan should also be manifested in the operational study and development of interactive teaching methods that have proven themselves in practice and the development of new teaching methods and techniques. Therefore, many methodological innovations are associated today with the use of interactive teaching methods. The essence of interactive learning is that the educational process is organized in such a way that almost all students are involved in the process of cognition and have the opportunity to understand and reflect on what they know and think. Such collaborative activity of students in the process of learning and mastering educational material means that everyone must make their individual contribution, in connection with which knowledge and ideas are exchanged. This happens in an atmosphere of goodwill and mutual support, which allows you to gain new knowledge and develop cognitive activity. Collaborative activities, in our opinion, focus on five main elements: positive interdependence; personal responsibility; facilitative interaction; teamwork skills; work in groups. In the process of dialogue learning, the dominance of either one speaker or one opinion over another is excluded. Here students learn to think critically, solve complex problems based on analysis and relevant information, weigh alternative opinions, and participate in discussions. To this end, in dialogue classes it is necessary to organize individual, pair and group work, use research projects, role-playing games, work with documents and sources of information, and use creative work.
The use of interactive teaching methods makes it possible to activate and use the enormous educational potential of professional pedagogical training and introduce elements of independence into the educational process.

Interactive teaching methods provide a real opportunity to create an atmosphere of partnership in the classroom. The teacher teaches how to work in creative collaboration mode with students. Interactive lessons are not ready-made recipes for good

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knowledge, but work in readiness mode for informed changes and making non-standard and responsible decisions. And this will allow the teacher:
- Ensure students' interest in the topic of the lesson;
- Achieve a more solid assimilation of educational material;
- Develop analytical (critical) thinking;
-To form professional and pedagogical skills;
- Create conditions for involving all students in active learning activities;
- Facilitate a favorable psychological microclimate in the study group.

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The experience of introducing active learning methods into such traditional forms of classes as lectures, laboratory and practical work, coursework and diploma projects indicates the high effectiveness of these methods and their beneficial effect on improving the quality of training of specialists. But the same experience shows that the activation of traditional forms of training only partially solves the problem of improving the training of a modern engineer. The fact is that these forms, in principle, cover only two (out of three) levels of knowledge acquisition: the first, at which the student receives a description of the objects of his industry, and the second, at which he learns to solve individual practical problems associated with the creation and functioning of these objects.

However, traditional forms of training, except, perhaps, industrial practice, almost do not affect the level of training of a specialist, ensuring that he acquires the skills of the upcoming professional (production and design) activities within the walls of the institute. The difficulty in acquiring these skills is due to the fact that such activities, as a rule, are of a collective nature, i.e. Most real decisions are made in the process of interaction with work colleagues and subcontractors, whose interests may sometimes turn out to be different.

With a technological approach, educational material is presented in accordance with clearly presented educational goals, divided into separate modules, each of which is accompanied by text and adjustments about the progress of the lesson, and all educational work is aimed at achieving standard results. However, today this is not enough, since the importance of the development of human mental activity is increasing. The development of these human qualities is facilitated by a procedural approach, aimed not so much at the expected result, but at the development of productive thinking abilities. Possessing critical thinking, a person, when getting acquainted with any ideas, considers all the possible consequences of their implementation. We used the possibility of combining technological and procedural approaches to increase the efficiency of the educational process, and as an example we offer a scenario for a game lesson called "Progress".

The purpose of the lesson is - to study the main stages of work to improve the design and technical and economic indicators of a lathe.

The lesson is conducted using the example of improving the performance indicators of a large machine-building plant.
As a result of the lesson, students should consolidate their knowledge of the design of a lathe, the features of its operation and materials processing technology, study the analytical dependencies that characterize the processing process on the machine, and the main features of brainstorming methods.

They must acquire the **skills**
*Systemic, functional and economic analyzes of indicators characterizing the operation of the machine;
*Development and application of criteria for evaluating technical solutions; application of the expert assessment method;
*public speaking with motivated defense of proposed technical solutions.

In addition, in the process, students should gain an understanding of the principles of organizing the work of a creative team, the main stages of work to collectively solve a technical problem, the functional duties and responsibilities of the services of the chief mechanic and designer, as well as production managers.

Contents and procedure for conducting classes. During the classes, the problem of improving the design of a lathe is solved. The lesson is conducted in six stages.

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Scheme of The Lesson

Now we will consider in detail each stage of work in the lesson

First stage. After familiarization with the purpose and objectives of the lesson, the leader introduces the students to the production situation in the machine shop, indicates the following information: 1) the number of machines in the workshop, their brief description; 2) the degree of equipment utilization, the availability of reserve capacity, the implementation of planned tasks; 3) nomenclature and volume of products; 4) labor needs, characteristics of the team.

Second Phase. Provides for conducting systemic, functional and cost analyzes of the operation of lathes. The stage begins with a system analysis of the lathe. Its performance as a technical system is determined, supersystems and subsystems are determined. Subsystems are analyzed, their classification into main and auxiliary is carried out, their mutual influence and interaction is considered. One or two subsystems are selected, the improvement of which is most promising. Next, a functional analysis of the system and subsystems is carried out. The characteristics of the starting material and the final product are given, and their influence on the processing process is analyzed. The functional analysis is completed by the selection of theoretical dependencies that describe the machining process on lathes. Cost analysis consists of determining the main expense items in the structure of product costs and the specific weight of each item.

Third Stage. Generating ideas for improving the machine. The Brainstorming method is used. The leader explains to the students the basic rules:

1. You can express any ideas - real, humorous, fantastic;
2. You can and should develop other people's ideas, but ideas should not be repeated. 3. Statements - in order of priority. The time for one statement is 1 minute. 4. You cannot criticize other people's ideas. The received ideas are written down on the board.

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The Fourth Stage is Motivated Defense of the Best Technical Solutions. After the end of the third stage, students receive a task - everyone must choose the 8 best from all 15-35 ideas and prepare to defend one idea, in their opinion, the best. 3 – 5 students present the defense. The following issues are covered during the defense process:
1) what indicators of the system will improve and how much;
2) what resources are needed to implement the proposal;
3) can it be carried out by the enterprise, without stopping the workshop;
4) will working conditions improve?
5) how will the reliability and durability of the machine change? Disadvantages of the protected proposal.
Based on the results of defending and testing the results of student proposals, 7 best solutions are identified. At this stage, students are divided into teams - managers, mechanics and designers. Each team is led by a captain.

The Fifth Stage is the -selection of a rational technical solution and its public defense. The choice of a rational technical solution is made by each team using a simplified method of expert assessments.

The Sixth Stage is the development of criteria for evaluating technical solutions. After the teams are formed, they take the places allocated to them and begin work on drawing up criteria for evaluating technical solutions. At the same time, both criteria common to the enterprise as a whole are identified, as well as specific ones that take into account the role of the unit whose role the team plays.

Having identified 7 evaluation criteria, each team draws up a matrix of evaluations, where vertically - technical proposals, and horizontally - evaluation criteria.

All ideas are assessed on a five-point system. Once the team has identified the best idea, one of the team members immediately begins to prepare for a public defense. The duration of the defense report is up to 5 minutes; each of the opposing teams can ask the speaker two questions. The teacher sums up the results of the classes and notes the most active participants and the most original and interesting ideas.

Incentive System for Class Participants. Students' activities during classes are assessed at each stage, starting from the second, using a five-point system. The assessment takes into account the originality of ideas, activity, and validity of presentations. For violation of the first mode (hints, lateness, unscheduled answers, etc.), participants are fined 1-2 points. The teacher can reward the most active students with an additional number of points from his fund (from 1 to 2).

Conclusion. Due to the fact that there is not yet any established theory of management simulation games and other gaming methods, their creation is mainly an individual research process, and its results are significantly affected by the qualifications, talent, experience and intuition of the authors of the development. The most important problems solved in the process of developing a business game are the formation of its model, information and technical support, as well as taking into account the didactic and psychological aspects of game modeling.

Today's students are tomorrow's highly qualified personnel. And they will work for employers who expect from them the ability to work, effective professional qualified activity; creative thinking and problem-solving skills; effective fruitful work in groups, in teams; approach tasks with confidence and knowledge.

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