DIDACTIC REQUIREMENTS AND CONDITIONS OF DEVELOPING THE CREATIVE SKILLS OF STUDENTS FOR THE ENGINEERING PROFESSION

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Abstract: In the article, students of higher education institutionsto the engineering professionto develop creative abilitiesfulfillment of didactic requirements and conditionsthroughformation of career-oriented creative ability in future engineersthe issue is stated.

Key words and concepts: student, education, training, engineer, creativity, ability, didactic, educational process, interest, skill, skill, profession, efficiency.

In most cases, the economy of a developed country depends on the arrival of promising scientific and technical ideas and the speed of their implementation. For this, it is necessary to increase the effectiveness of scientific research and creativity. The success of the work often depends on the qualifications of specialists, their ability to creatively solve complex scientific research, experimental design and organizational issues.

The problem of formation of such specialists is mainly solved in the framework of fundamental, applied research and higher education system. In the system of higher education, it is necessary to identify and select students interested in science, and educate them. For this reason, there is a need to improve the didactic foundations of teaching in higher education institutions.

Education of students with creative thinking skills can be done by involving them in scientific research and applying the results to production.

Specialization-creative orientation of students is carried out by teaching them the basis of methodology and the experience of scientific creativity.

For this reason, it is an urgent issue to learn to implement the orientation of students to science through the formation of creative abilities in higher education institutions.

In scientific articles on the problems of professional competence published by various authors, it is noted that creative research is one of the most important qualities. In this study, special emphasis was placed on the issue of creativity in the professional competence of the specialist, which implies the development of professional and pedagogical creativity in the specialist.

The main aspects of creativity BC Bibler, J. Brunera, A. V. Brushlinskoy, L. S. Vygotsky, I. Ya. Galperin, I. P. Gilford, V. V. Davydov, G. Klaus, Y. N. Kulyutkin, A. N. Leontev, A. M. Matyushkin, J. Piaget, Ya. A. Ponomarev, K. Popper, S. L. Rubinstein, etc. are mentioned in the works of famous philosophers.

M. G. Yaroshevskyi emphasized that creativity is creating something new. It should be understood in such a way that the imagination of the subject is renewed and the character, the products he creates and gives are also improved»[13]. Similar definitions and symbols can be observed in one form or another in the activities of many other creators. For example, S. L. Rubinstein said that creativity is a kind of innovative activity. Bringing in new things causes the creative to rise. At the same time, it also leaves its mark in the history of the development of science and culture [12].

Creativity means "reshaping" - creating a new form using existing form elements. "Reformation" creativity involves the discovery of a new form that resembles a previously known form. Creativity is "transition from one form to another" - in this process, a new pattern of rules, drawing, a new type of certain structures emerges. Newly created forms will not be new interpretations of old forms. As soon as the rules are created, the creative person begins to create new rules based on them. It is then a puzzle to open up the activity forms, to discover forms that have never been used before.

In pedagogy, the science of psychology is of incomparable importance in the development of the foundations of the theory of creativity, in researching the laws of creative processes in activities. In particular, in the works of psychologists such as L.S. Vygotsky, A.N. Leontev, S.L. Rubinshtein, B.M. Teplov, the problems of development of creative abilities and creative thinking were deeply studied" [2].

The first quality depends on I. Ya. Lerner's point of view. According to him, it is impossible to measure the limits of the qualities of people engaged in creativity, to express an opinion about them, it is impossible to speak without understanding the nature of this activity, without knowing its similar qualities, and more precisely, without studying the processes of its creative activity [7]. In this regard, the researcher distinguishes procedural boundaries of creative activity:

- independently transfers distant and near, internal and external knowledge systems and skills to a new situation;

– feels new problems in traditional situations;

– the object imagines a new one instead of its traditional function;

- takes into account alternative solutions when solving problems;

- processes previously known methods and ways of activity in solving new problems;

- abandons old ways in order to find new ways on principle.

One of the most effective means of activating the human factor is the development of creativity in all aspects of society, in production, technology, science, education and management. Therefore, the conditions and forms of organization of solving creative problems as a team are urgent issues on the agenda.

A creative person is hungry to create. He knows how to work hard to make it happen.

Creativity is the activity of a person to create new material and spiritual blessings. Creativity appears first of all in the human imagination, then researches and observations are analyzed and logical conclusions are drawn. Creativity enriches and develops science and technology, culture.

Creativity is a conscious, purposeful activity of a person aimed at knowing and changing existence, as a result of which new, non-existing objects, technical developments, etc., aimed at improving the material and spiritual life of society, are created.

In higher education institutions, students with a tendency to creative activity are identified from the first day of study and selection work is carried out.

This work is done by extracting and evaluating characters (Table 1).

Table 1

Signs	Grades		
	Medium	**Good**	**Excellent**
Analysis of the results of university entrance exams	-	+	-
Determining prior achievements	-	-	+
Determining the scope of the student's interest	-	-	+
ICT skills	-	+	-
The level of knowledge of foreign languages	+	-	-

We study the above-mentioned marking and evaluation table for each student section. Faculty, department and tutors should work together in fulfilling this task.

The received statistical data will be analyzed and the scope of the student's creativity will be determined, and a scientific supervisor will be appointed in the required direction.

The scientific supervisor helps the student to draw up a development plan and involves him in research work.

In short, higher education institutions should not only train specialists in a certain field, but should also identify creativity in students, develop it, and realize it. Because creative students are drivers of the overall development of the country.

Based on the above conclusion, we make the following recommendations:

- the basis of the educational process is based on the needs of the learner:

- in the process of education, it is necessary to introduce individual education along with collective education, choose its path and determine the means of implementation:

- it is necessary to develop and implement ways to stimulate students' constant motivation to learn.

The training of a specialist who thinks creatively and is not afraid to take scientifically based risks should be carried out in the following stages:

- identification and selection of creatively inclined students, their training;

- involving them in scientific research work, applying the results to production;

- it is carried out by providing students with professional-creative orientation, teaching them the basis of methodology and the experience of scientific creativity.

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