



MODERN PEDAGOGICAL APPROACHES IN THE SYSTEM OF ENGINEERING EDUCATION

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ABSTRACT: - The article presents the results of the analysis of the specifics of the psychological and pedagogical competence of future engineers, as well as the most effective pedagogical approaches used in the system of engineering education. By psychological and pedagogical competence, we mean: the ability of university graduates to master the basic material of the psychological and pedagogical block; the ability to operate with the acquired knowledge and appropriately apply them in practice; possession of the acquired skills in the conditions of a specific professional and pedagogical activity.

KEYWORDS: Engineering education, engineering pedagogy, psychological and pedagogical competence, student learning strategies, modern pedagogical approaches, socio-cultural environment of the university.

INTRODUCTION

Today, information and communication technologies play a central role in the intellectualization of society, the development of its education and culture. Information and communication technologies in education have proven their effectiveness as a method of training, advanced training and retraining of personnel. The use of modern technologies in education is a catalyst for evolutionary changes in the means and methods of activity, improvement of methods and forms of

education, improvement of its quality by increasing motivational and strengthening control and evaluation aspects of education. For example, now textbooks and teaching aids often have informational support. These can be multimedia versions of textbooks, tutorials, reference books with accessible, well-thought-out material, interface and search engine; training and test computer programs, simulators, virtual laboratory workshops, etc. Information support of this kind cannot but lead to the expected result - improving the

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quality of knowledge. Having good technical, software and methodological support, the teacher himself must be fluent in computer skills and, most importantly, correctly understand his new role. The main functions of a teacher related to the use of information and communication technologies include: 1) selection of educational material and tasks; 2) planning the educational process; 3) development of forms for presenting material to students.

The general scheme of the educational process can be represented by the following elements:

- a) providing learning motivation;
- b) organizing the activities of students in accordance with the principles of developmental education;
- c) control of learning outcomes.

According to the type of dominant motives, three groups of adult students can be distinguished. Representatives of the first group are distinguished by initiative, a pronounced desire for success, high results, competition and superiority. For them, the main motives are self-realization and self-development. The second group is students who are characterized by diligence, but they do not have a particular propensity for active actions. For them, teachers must create an atmosphere of success and recognition, and then they can change their attitude to learning. The third group includes students who are focused not on the work itself, but on getting grades in any way.

Let us dwell on the specifics of the selection of educational material used in the logic of the educational process. The practice of teaching and communicating with teachers shows that, as a rule, two types of answers follow the question of what criteria are used to select educational material for adult students: "We

select everything new that is in this science" and "We select the necessary material for formation of practical skills". In our opinion, the second point of view is more promising, it accumulates in a simple motto: "Not new, not old, but necessary."

For the selection of educational material, it is advisable to use the following algorithm:

- highlight the individual difficulties of students in their professional activities and record them;
- to systematize the identified difficulties, dividing them into groups;
- determine the methods by which it is necessary to address these difficulties in each specific group;
- select that part of the educational material that must be mastered to complete the task and develop certain skills.

One of the effective forms of developmental learning is a game form of organization of the learning process, which is used not only for mastering new educational knowledge, but also for relearning and overcoming resistance to learning. Game forms in this case contribute to the removal of stereotypes of past professional experience and the transformation of the educational process into the process of managing personal development. Role-playing games are preferred. As a rule, they are aimed at developing students' communicative abilities (the ability to act in conflict situations, take someone else's point of view, understand another, predict the impact on the interlocutor of one's actions, etc.). The use of role-playing games presupposes a mandatory reflection of the activity. Otherwise, no learning takes place.

Business game is another type of game. Its potentialities are wider. They make it possible

to form a holistic view of professional activity among the participants of the game, to transfer professional knowledge in an activity form and to develop reflexive abilities. The essence of the business game is in the imitation of professional activity.

The result of the application of innovative pedagogical technologies is the acquisition by their participants of professional means of activity, since they are the main object of the game.

The activity of the teacher is autonomous, he is often deprived of the opportunity to look at himself from the outside. This circumstance, on the one hand, makes it possible to develop an individual style, and on the other hand, it can lead to the conservation of the once found image and to professional deterioration. The latter is manifested in the loss of interest in the new, in the belief that it is necessary to teach "as before", in the desire to influence students, in the standardization of behavior.

Thus, the specificity of training future engineers in order to increase their level of psychological and pedagogical competence is a complex multifaceted process, specially organized in time and space, which involves taking into account certain methodological and methodological patterns and is aimed at developing the professional qualifications of future graduates of educational institutions with a view to their further implementation. within the framework of future professional activity.

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