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PREPARING STUDENTS FOR RESEARCH ACTIVITIES BASED ON PROJECT TECHNOLOGY

G.S. Ergasheva*; M. A. Sultanova**

*Associate Professor,
Doctor of Pedagogical Sciences,
Department of Biology TSPU named after Nizami,
UZBEKISTAN

**Master of the I course of the Specialty,
"The Method of Teaching Accurate and Natural Sciences,
UZBEKISTAN

ABSTRACT

The article highlights the use of design technology in the classroom, with the aim of preparing students for research activities in biology. The ways of developing the research competence of future specialists in the preparation of professional activities are grounded. The set of interrelated components (organizational, content, activity, evaluative and productive), focused on the development of personal intellectual qualities in the course of students' scientific activities in the educational process of studying biology, has been substantiated.

KEYWORDS: *Technology Design, Biology, Research Activities, Students, Specialist, Training, Informatization, Research Competence.*

INTRODUCTION

The development of modern society is characterized by ever-increasing dynamism, penetration to new levels of knowledge of nature, changes in social structure and the emergence of qualitatively new types of activity in previously unknown areas. In these conditions, the ability and desire to independently search for the necessary information, mastering the fundamental knowledge that constitute the theoretical foundations of professional activity, the ability to create and implement new strategies of conduct and activity becomes especially important for a modern specialist.

The current stage of development of society poses a number of fundamentally new problems for the education system, caused by political, socio-economic, ideological and other factors, among which the need to improve the quality and accessibility of education should be emphasized. Increasing academic mobility, integration into the global scientific and educational space, creating economically optimal educational systems, increasing the level of university corporatism and strengthening ties between different levels of education.

The next challenge of the era was the reform of higher education, which implies a transition to a two-stage system of education: bachelor's and master's degrees, introducing a "commercial note" into the activities of universities. In this regard, the goals and content of education are being revised, the expectations and requirements of students for the educational process are changing, universities themselves are critically rethinking the key areas of their activities. Obviously, only highly qualified teachers who need to update theoretical and practical knowledge in connection with a fundamental change in modern approaches to solving professional problems can achieve these goals and fulfill the assigned tasks [1, 5].

As a key trend leading to a significant change in the principles and methods of organizing research and educational activities of universities, it is necessary to highlight the growing role of the project approach to university management [2, 8].

In science, a lot of attention is currently paid to the problems of the development of a creative personality. The share of concepts and curricula that set the main goals for the development of research competence, which presupposes the development of creativity, cognitive activity and curiosity, the global research attitude as a personality trait, and the development of research strategies in conditions of novelty and uncertainty, is increasing.

In recent years, a number of innovative teaching technologies have been developed in pedagogy, corresponding forms, methods and means that have great potential in the development of the research culture of students. Among them, such teaching technologies as problem-modular training and concentrated training, a fan of special methods and techniques aimed at developing students' creativity (brainstorming, bending, synectics, etc.).

This includes the technology of project-based teaching, which has great opportunities in the development of the personality of students, including research competencies. The actualization of the ideas of project-based education is currently due, among other things, to social changes that take place in social development.

The use of project methods involves the use of a wide range of problematic, research, search methods, focused clearly on the real practical result, significant for each student participating in the development of the project, as well as the holistic development of the problem, taking into account various factors, conditions for its solution and the implementation of the results [3.93].

Project education teaches the development of a project attitude towards the world, one's own life, allows to combine educational, research and quasi-professional activities of future specialists.

Research goals: to develop a model of the step-by-step use of project-based teaching technology for the formation of students' research competence based on theoretical ideas about the essence and content of research competence, the internal capabilities of this technology, the conditions for its combination with the requirements of problem-based, modular, concentrated learning

technologies. The model provides for the consistent implementation by students in the learning process of projects corresponding to situational activity, focused on the formation of positive motivation for research activities.

Object of research: to develop and substantiate the use and condition of formation in order to prepare the research activities of students in the process of project learning.

Research methods: During the research, a theoretical method was applied (analysis, content analysis, synthesis, modeling, abstraction and definition, generalization); empirical method (test, pedagogical observation, expert assessment, study of normative documents, comparison, characterization, self-analysis of subjects of participants in the educational process); social methods (questioning, blitz poll, conversation).

Scientific research is as follows. The composition and structure of the model of research competence of the individual have been determined.

The set of interrelated components (organizational, content, activity, evaluative and productive), focused on the development of personal intellectual qualities in the course of students' scientific activities in the educational process of studying biology, has been substantiated. the effectiveness of the development of scientific activity of students: the criterion of effectiveness (provision of organizational and pedagogical conditions) is determined by the dynamics of creative development, manifested at a limited, acceptable and optimal levels.

The didactic means and conditions for the implementation of the developmental possibilities of project training are revealed, depending on the types of training (theoretical, practical).

In the process of theoretical training, they are: strengthening the research potential of tasks and assignments by giving them a problematic character; a consistent increase in the proportion and interdisciplinary nature of students' independent project activities; immersion of students in situations as close as possible to the real conditions of professional activity.

The formation of students' research competence in project-based learning will be effective if:

- to identify the composition of the structure, functions and basic properties of research competence, considered as the ultimate goal of the project learning process;

- to consider the formation of the research competence of students as a continuous step-by-step process from encouraging students to research activities to active creativity in educational and research work;

-selection and structuring of project assignments based on real professional problems;

- forms and methods of project training implementation ensure students' immersion in a situation as close as possible to the real conditions of professional activity.

In conclusion, we note that an integrated approach to the organization of scientific work in the university provides for systematic work on the development of creative abilities students, involving them in a variety of forms of research activities, equipping students with scientific research methods, increasing their mental culture. The development of a student's personality will be successful if cognitive and scientific activities are motivated; create creative teams with taking into account scientific interests, abilities and student opportunities; provide a research

base; create situations of success when implemented into practice scientific results; encourage creative activity and independence of researchers in solving scientific problems.

Thus, scientific work is an integral part of the educational process of students. Students master the skills of creative, search work, learn to pose and solve actual tasks, master in practice methods of experimental research work. The results of scientific research make it possible to identify the most promising young scientists for further teaching them in graduate school.

Conclusions on the content, structure and levels of research activities in biology. An applied-theoretical model of the formation of students' research competence in the context of project-based learning, which provides for the gradual complication of projects, an increase in the degree of productivity of dominant activities, an increase in their share of the interdisciplinary nature of independent activities.

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