



**CHARACTERISTICS AND STATUS OF ORGANIZATION OF
MATHEMATICS IN HIGHER EDUCATIONAL INSTITUTIONS**

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Annotation

This article analyzes the features and status of the organization of mathematics lessons in higher education institutions and identifies the role of modern didactics in the process of teaching mathematics and shows the aspects of the creative organization of mathematics lessons.

Keywords: higher education, mathematics, teaching process, problem sets, technological approach to education, theoretical and methodological analysis, Hard skills, Soft skills, creativity, pedagogical skills, problems, suggestions, quality of educational process, degree classification.

Introduction

The issues of improving the process of teaching mathematics in higher education institutions play an important role in its development in a set of problems at a certain stage, which are addressed by the education system.

The technological approach to education is one of the factors influencing the active impact of the organization of training in a modern form and its effectiveness, integrity and success. Theoretical and methodological analysis of the technological approach to education shows that the social order of society depends on the level of development of pedagogical science and individual requirements for the formation of the future pedagogical personality.

It is an important task today to pay special attention to the fact that the future specialists studying in higher education institutions have a thorough professional



training in accordance with modern requirements, to become masters of their profession. The more knowledgeable and skilled the professional staff is, the more it can contribute to the development of the country.

Leading international experts in the field of education propose the harmonious introduction of two types of competencies in the educational process. These are: “Hard skills” – professional competencies and “Soft skills” – universal competencies. [<https://mephi.ru>].

Hard skills – as a set of knowledge that can determine and measure the level of skill (speaking a foreign language, mathematical knowledge, ability to use computer programs, etc.). Hard skills – In order to acquire a “hard” qualification, it is necessary to have a clear knowledge of a particular profession, and the availability of these skills is determined by examination.

Soft skills are returned as flexible, agile skills (creativity, teamwork skills, emotional stability, responsibility, initiative, etc.) that do not have a clear and common unit of measurement. Soft skills are often interpreted as personal qualities, attributes, abilities, as they are directly related to human character and life experience. [<https://mephi.ru>].

Until the XXI century, the education system has focused on providing students with “hard skills”. That is, the thorough mastery of a certain profession, the full mastery of its secrets – is returned as a key factor that determines the maturity of the individual.

The pedagogy of the XXI century warns that in the modern world these qualities are not enough, and now it is necessary to work on the basis of the need to develop thinking, to create a creative space, environment, creative person, creative product. Analysis of psychological, pedagogical, scientific and educational literature in the organization of mathematics lessons in higher education institutions, as well as educational practice shows that the pedagogical skills and aspiration of our teachers in the organization of lessons in a modern form is growing.

The object of a number of researches is the problem of training future specialists in accordance with the requirements of the time, the organization of training sessions in educating them to be masters of their profession, quick to recognize innovations and apply them in their work.

President of the Republic of Uzbekistan Shavkat Mirziyoyev chaired a video conference on June 16, 2021 on “Priorities in the system of higher education.” Based



on previous old science and directions,"Further harmonization of state education standards with international standards, the introduction of curricula and literature, science programs, the workload of professors and teachers, the definition of forms of education, etc." defined tasks such as.

A creative educator is a mature master of his profession – a master educator and he has certain pedagogical skills. In order to be successful in all situations, the teacher must constantly improve their knowledge and skills, constantly study modern pedagogical and information technologies, advanced pedagogical practices, methods and develop professional and pedagogical creativity.

As a result of studying and analyzing the literature and research in the field, conducting interviews with experienced teachers, studying the views of professors and students over the past decade, the following problems appear in the organization of mathematics lessons in higher education institutions. In particular:

Areas of study Curriculum and science program allocate less time from mathematics to practical training. As a result, the knowledge acquired by students in lectures is insufficient to develop the ability to fully master the teaching materials in practical classes;

Less attention is paid to integrative approaches to the organization of training in mathematics. This is due to the lack of a new generation of textbooks in the field of mathematics in accordance with the specialties;

Insufficient attention is paid to the teaching of mathematics using computer technology and the package of applications available in it. This is due to the fact that in the process of improving the skills of our specialists, little attention is paid to the formation of the ability to study and work with applications that are appropriate to the specialization of information technology;

Little attention is paid to the role and importance of effective use of interactive teaching methods and educational technologies in the effective organization of teaching mathematics. This is due to the passivity of the transition of our professors and teachers from traditional education to non-traditional (interactive, programmed) teaching methods and the process of using them;

Insufficient experience of our professors and teachers in the effective use of educational technology in the design and teaching of mathematics. This is due to the fact that our professors do not have enough teaching, methodological recommendations and literature (electronic manuals and applications) to design and use teaching methods.



Note: Study and analysis of normative and legal documents (qualification requirements, curriculum, science program, working curriculum of science, workload of professors and individual work plan) for the 2018-2019, 2019-2020 and 2020-2021 academic years) it can be seen that there are the above problems in the process of making.

Based on the above problems, it would be expedient to take into account the following suggestions aimed at increasing the process of mathematical creativity (soft skills) of teachers and students, the effective organization of lessons in mathematics and improving the quality and efficiency of the educational process. In particular:

Increase the number of hours allocated for practical training in “Higher Mathematics” and “Mathematics” in the curriculum of higher education institutions in the field of education;

Adequate attention should be paid to the use of computer technology and a package of applications (MS Excel, Maple, MathCad, GeoGebra, 1C Matkit8, etc.) in the organization of training in mathematics;

Effective use of interactive methods and educational technologies that serve to make mathematics lessons more effective, to motivate students’ interest in mathematics and their mastery of it;

Adequate provision of educational literature (electronic manuals and applications) to our teachers, which reflects the methodological system of effective use of educational technology in the design and teaching of mathematics.

The creative potential of the educator is reflected as its common feature. It is the first condition and result of creative activity. Creative thinking is also evident in mathematics. The creativity of a mathematics teacher is reflected in his / her professional activity based on his / her creative approach.

In foreign countries, teachers determine the presence and level of their creative qualities.

Creativity (Lat., English. “Create” – to create, “creative” – creator, creator). The concept of creativity has been extensively covered and introduced by the English psychologist E.P. Torrens. Creativity is also reflected as an important factor of talent. In addition, creativity determines the sharpness of the mind and ensures the active involvement of students in the educational process. [<https://ru.wikipedia.org>].

Well-known business coach, founder of SBA University V.Shipilov classified his levels in the process of formation of knowledge, skills and creativity as follows (Table 1) [<https://mephi.ru>]:



1-table

A degree	Degree classification
Level 5 Skilled (professional), Specialist (master)	The highest level of skill development. A person who has high-level professional, expert (authority) specialist. By specialization the competence to develop in their field, to further improve, to teach others
Level 4 Advanced specialist	High level of skill development. A highly qualified specialist with experience in applying their skill correctly even complex processes and non-standard situation
Level 3 Experienced specialist	Intermediate level of skill development. A specialist with sufficient knowledge and skills in economics, and ability to effectively apply their knowledge in practice.
Level 2 Developing (amateur) specialist	Low level of skill development. A person in the process of acquiring certain skills and abilities. A person who understands the importance and essence of his profession, tries to develop his knowledge and skills, but is unable to apply it consistently in practice.
Level 1 Unqualified specialist	The lowest level of skill development. A person who does not have a qualification level, does not understand its importance and essence, does not try to develop their knowledge and skills.

In summary, the analysis of scientific, teaching resources and practices shows that strengthening the ability to effectively organize lessons in mathematics using educational technologies and modern teaching methods, developing projects on specific topics of lessons that enhance the mathematical creativity of teachers and students. It is necessary to pay attention to further improvement of the methodology of effective organization of training on the basis of enrichment of educational and methodological support, which is the basis for effective organization.

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