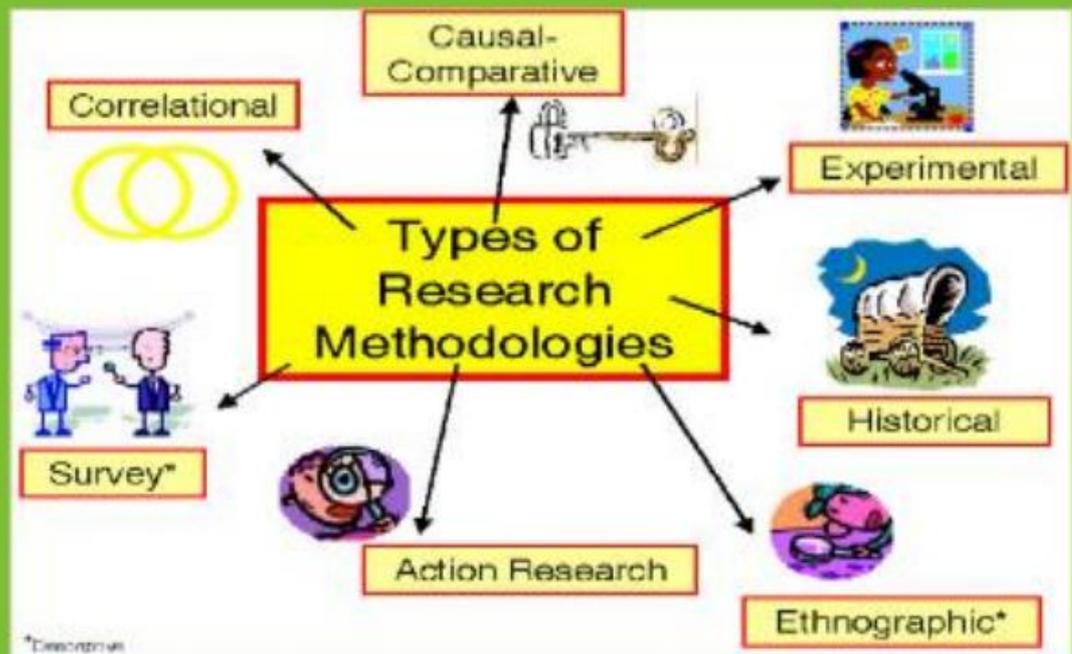


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## THE INDEPENDENT WORK OF FUTURE TEACHERS OF MATHEMATICS AS A METHOD OF FORMING PROFESSIONAL COMPETENCY

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### ABSTRACT

The presented article considers the independent work of future teachers of Mathematics as a method of forming professional competencies.

**Keywords:** higher education, Mathematics, method, professional competence, independent work.

### INTRODUCTION, LITERATURE REVIEW AND DISCUSSION

In recent years, the higher education of pedagogy has paid great attention to the need to improve the effectiveness of student self-education. For these purposes, a special order was issued in 2009 by the Ministry of higher and secondary special education of the Republic of Uzbekistan with a corresponding application, several scientific and methodological work outs were made up on the organization of independent education, independent work, independent activity and independent study of students.

In analyzing the processes of reforming higher education, the independent work of future teachers of Mathematics is considered as one of the stages of the educational system at the university. Future teachers of Mathematics are required to constantly improve their own knowledge; in education process the focus from teaching the subject generally moves to teaching of independent activity to future teachers of Mathematics.

Due to the conditions of high intensity of information awareness in the society, a fundamental change in the organization of educational process is required: reducing the classroom load of the teachers, replacing passive listening to lectures with an increase in the share of independent work of future teachers of Mathematics.

In this regard, it is important to emphasize that the teaching of future teachers of Mathematics is not an individual's self-education, but a systematic, teacher-controlled independent activity of future teachers of Mathematics, which becomes dominant, especially in the modern conditions of transition to multi-level training of higher education specialists in Uzbekistan in the system of higher education in general.

Therefore, the proportionality between classroom and extracurricular classes caused close attention to the gap in organizing the independent work of future teachers of Mathematics as a whole, and not only and not so much in the traditional boundaries of specific disciplines. Strategies to the forefront is the initial level of independence with which the enrollee has come in comparison with the requirements for a graduate of higher education.

In the methodological guidelines for the organization of independent work performed by students in the framework of independent study given a large list of varieties of the following work:

- independent mastering of some themes of the subject being taught according to the educational literature, familiarization with educational sources;
- preparation for practical and seminar studies;
- preparation of the abstract on a specific topic;
- implementation of term papers or course projects;
- performance of settlement and graphic works;
- work on mock-ups, models and literary or artistic works;
- solving a real-life problem;
- compilation of tests, discussion questions and tasks;
- preparation of scientific articles, theses and lectures;
- the solution of non-standard problems of a practical nature and creative work;
- homework and others [3, p. 25].

Assuredly, this list does not fully apply to all academic subjects. Based on the specifics of the subject, the teacher may give preference to two or three and preferably not more, types of independent work of the student. Moreover, at the same time, one should not forget that independent work of a student is not still an independent study yet. The independent work of a student becomes an independent education only when an independent study task precedes it and its pedagogical assessment follows.

Designing an independent education begins with the specification of pedagogical requirements or conditions for calculating the time spent on its implementation:

- semester, in which the academic subject is taught;
- lectures;
- workshops;
- self-education - self-study [1, p. 62].

This kind of information allows us to specify: how many hours a student should devote to an independent study of the subject theory and how many hours to independently develop practical skills and abilities.

Depending on the place and time of the independent work of future teachers of Mathematics, the nature of its leadership by the teacher and the method of control over its results are divided into the following types:

- independent work during the main classroom sessions (lectures, seminars, practical work);
- independent work under the supervision of a teacher in the form of planned consultations, creative contacts;
- extracurricular independent work in the performance of future teachers of homework mathematics of educational and creative nature.

Certainly, the independence of the above types of work is rather arbitrary, and these types intersect with each other in the real educational process. In general, the independent work of future teachers of Mathematics under the heading of a teacher is a pedagogical support for the development of aimed preparation for professional self-education and is a didactic means of the educational process, an artificial pedagogical structure for organizing and managing students' activities.

Thus, the structurally independent work of future teachers of Mathematics can be divided into two parts: organized by the teacher and independent work that the future teacher of Mathematics organizes at its discretion, without direct supervision by the teacher (preparation for lectures, practical exercises, colloquiums, etc.). However, taking into consideration the independent work of future teachers of Mathematics, the following points should be considered:

- the relationship between teachers and future teachers of Mathematics in the educational process;
- the level of difficulty of tasks for independent work;
- the inclusion of future teachers of mathematics in the formation of the activities of the future profession.

The organization of independent work of future teachers of Mathematics under the heading of a teacher is one of the effective directions in the educational process, which develops independent creative activity that extremely strongly stimulates the acquisition and consolidation of knowledge [4, p. 93-97].

The independent work of future teachers of Mathematics acquires special relevance in the study of special disciplines, since it stimulates future teachers of mathematics to work with the necessary literature, develops decision-making skills. From the point of view, the development of one large task by a team of several students seems to be very promising, since such an approach instills the skills of collective creativity.

In the context of innovative education, the independent work of future teachers of Mathematics occupies an important place in the formation of professional competencies of future teachers of mathematics.

Currently, the active position of future teachers of Mathematics in teaching this subject is not achieved sufficiently, so the modern graduate is not adequately prepared for the recollection of scientific information and independent work on its understanding. Changing the load in the curriculum in favor of independent work does not solve all the problems of its organization, such as the problem of individualization of training and the development of creative abilities of the future specialist.

In the traditional form of education, future Mathematics teachers are limited in independent work to study abstracts, a lecture and without special tasks rarely turn to reference books themselves, with the result that future motivation teachers have little intrinsic motivation, a desire to understand and understand the specific material studied independently [2, p. 15].

The manual of independent work of future Mathematics teachers in terms of innovative education provides for organizational, methodological, regulatory components, but it is the teacher who should build the system for independent work of future mathematics teachers, choosing forms, goals, educational information, ways of pedagogical communication and clearly understanding their own role in this process.

The organizational component of the independent work of future teachers of Mathematics involves the preparing of relevant textbooks that will help future teachers of Mathematics to build the logic of the educational material. Future teachers of Mathematics should also have examine materials, for example, collections of situational educational tasks for a special

discipline, as well as the presence in the textbooks of criteria for assessing students' knowledge for their self-control.

The methodological component implies the development of tasks for independent work of future teachers of mathematics used in various forms of organization of the educational process (lectures, seminars, practical classes).

The regulatory component of managing the independent work of future teachers of Mathematics is aimed at organizing forms of cooperation that stimulate the autonomy and creative activity of future teachers of Mathematics.

Leading the independent work of future teachers of Mathematics is a creative pedagogical process, the success of heading this process is determined by the teacher's readiness to open creativity, dynamically developing jointly intellectual and communicative activity with future teachers of Mathematics in a specifically modeled learning situation. By means of this type of interaction between a teacher and future teachers of Mathematics, conditions are being created for the professional development of future teachers of Mathematics.

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