USE OF INNOVATIVE TECHNOLOGIES IN TEACHING MATHEMATICS

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Annotation

This article discusses the theoretical and methodological foundations of interdisciplinary integration in the preparation of future mathematics teachers. It also reveals the current issues related to the integration of the educational process, the study of its methodological foundations, the development of forms and methods, the state educational standard and the continuing education system.

Key words: technology, lifelong learning, networking technologies, integration, existentialism, creativity, theory, methodology.

Annotatsiya

Ushbu maqolada bo‘lajak matematika o‘qituvchilarini tayyorlashda fanlararo integratsiyaning nazariy va uslubiy asoslari muhokama qilinadi. Shuningdek, ta’lim jarayonini integratsiyalashuvi, uning uslubiy asoslarini o‘rganish, shakl va metodlarni ishlab chiqish, davlat ta’lim standarti va uzluksiz ta’lim tizimi bilan bog‘liq dolzarb masalalar ochib berilgan.

Kalit so'zlar: texnologiya, umrbod ta'lim, tarmoq texnologiyalari, integratsiya, ekzistensializm, ijodkorlik, nazariya, metodologiya.

Аннотация

В данной статье рассматриваются теоретико-методологические основы междисциплинарной интеграции при подготовке будущих учителей математики. Также раскрываются актуальные вопросы, связанные с интеграцией образовательного процесса, изучением его методических основ, развитием форм и методов, государственного образовательного стандарта и системы непрерывного образования.

Ключевые слова: технологии, непрерывное обучение, сетевые технологии, интеграция, экзистенциализм, творчество, теория, методология.

The integration of the educational process, the organization of its methodological basis, the development of forms and methods, are topical issue related to the state standard of education and the system of continuing education. The integration of the education system in today's new socio-economic conditions meets the requirements of market economy changes, adequate provision of

material and technical and information base of the educational process, involvement of highly qualified teaching staff in the educational process, training of quality teaching and learning. One of the most important issues is to establish mutual integration between the two countries. In order to develop the stages of Intersectoral integration in ensuring the quality of training and their employment, based on the primary social, professional needs and requirements, the ultimate goals of integration, the tasks for their implementation, methods and tools for solving them will be analyzed in detail and thoroughly. Creating a framework for cross-sectoral integration aimed at ensuring the quality of training and employment in the implementation of the stages of intersectoral integration; development of an integration strategy of higher education institutions that train personnel for the industry and its implementation through optimal mechanisms, methods and tools; introduction of criteria for monitoring the development trends in the labor and educational services market, the dynamics of supply and demand, the impact of structural changes in the industry on integration; revision and improvement of organizational and legal aspects of marketing activities in higher education, implementation of effective use of the opportunities of the integrated approach in the management of higher education institutions [1, 2].

Learning activities aimed at ensuring interdisciplinary connectivity are somewhat challenging for students. Emphasis is placed on initial homework in other subjects, minutes of repetition in the classroom on the basis of one textbook, the use of schematic demonstrations. Achieving the acquisition of educational materials on the basis of ensuring interdisciplinary links allows to ensure the interdisciplinary connection in an appropriate way.

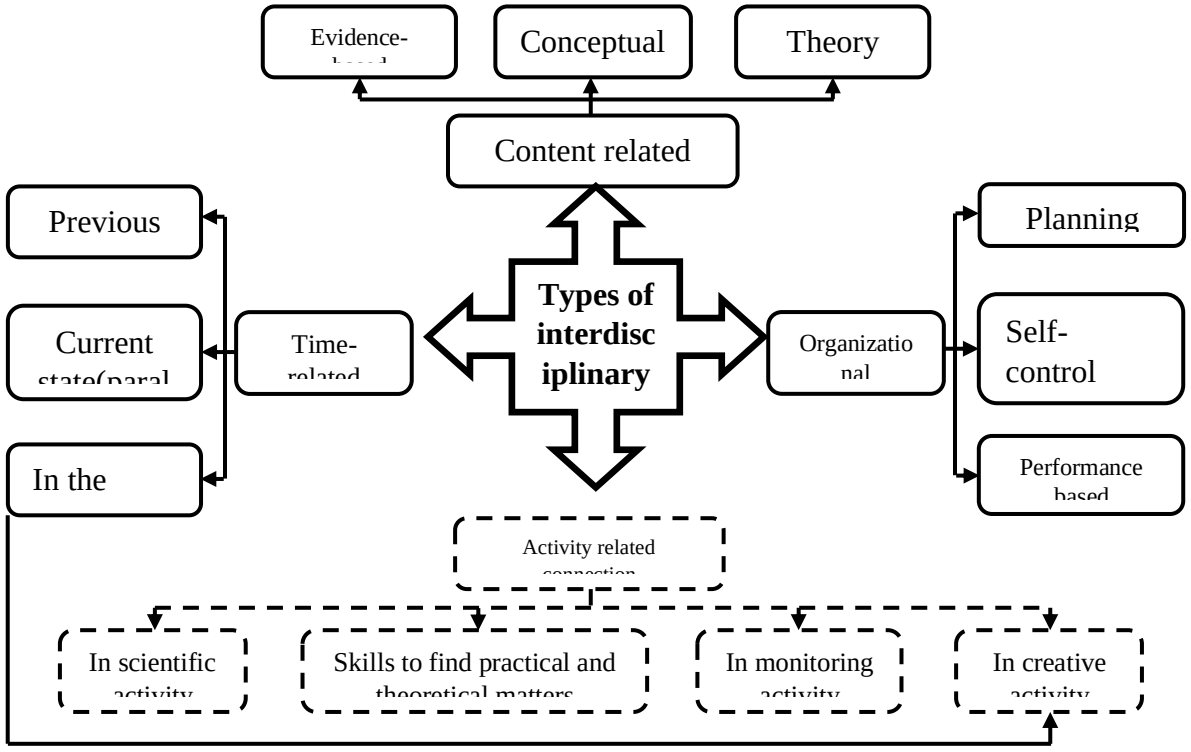


Figure 1. Description of types of interdisciplinary connections.

One of the most pressing issues today is the ability to identify hidden connections and associations in the formation of the scientific worldview, interdisciplinary links, that is, to ensure membership. Because with interdisciplinary connections, a teacher who is able to organize the lesson not only increases the interest of students in their subject, but also helps them to master the subject. As a result of the systematic implementation of interdisciplinary links, the relevance of the educational process will increase significantly. At the same time, it is an important condition for the development of knowledge and interest in academic subjects. Concepts, arguments, laws, judgements, conclusions that make up the curriculum through structural analysis, if through the analysis of the study material on the topics it is superficially determined

which topics of different subjects are interrelated. The connection between the ideas is established. The form in which the interdisciplinary relationship its being recorded depends on the capabilities of the user.

Interdisciplinary connections should be interpreted more broadly as not only the interaction of individual subjects, but also the interaction of teachers and students, that is, as a system of all elements of the learning process. To determine the importance and place of interdisciplinary relationships in the learning process, it is necessary to classify their relationships, because a systematic approach allows to determine not only the versatility of these relationships, but also their manifestation and methods of their use (Figure 1).

There are also general requirements for homework based on academic interdisciplinary links. Such independent, individual lessons should have such directions as scientific and comprehensible, to ensure the vitality of the content of education, its relevance to practice, to accelerate the cognitive activities of students. The curriculum should use a variety of forms of teaching, such as advanced pedagogical technologies, problem solving, independent work with books, exhibitions, based on interdisciplinary connections.

Ensuring its continuity is one of the key factors in modernizing the content of education. Integrity in education is the ability to correctly establish the necessary connections and relationships between its parts at different stages of the study of a particular subject. Membership means the sequence, systematic placement of educational material, reliance on previously acquired knowledge, future application of educational material, the duration of the stages of educational work. Interdisciplinary coherence in textbooks should be reflected in the coherence of teaching materials and teaching methods, coherence depends on them, but it is also relatively independent and affects the improvement of teaching materials and teaching methods.

The educational process is an integral part of the educational process, and the implementation of the integration process in this process also provides the conditions for the development of students into well-rounded individuals who will be trained as mature professionals. However, the emergence of such conditions requires an understanding of the nature of the integration process of teachers, who are the main subject and leader of the educational process, the formation of skills for their effective use in the implementation of pedagogical activities. Adherence to the principle of interdisciplinary interdependence is one of the important factors in improving the quality of education. It is known that interdisciplinary connection provides a comprehensive and in-depth study of the studied topics. It is interpreted in pedagogy at the levels of membership, interdisciplinary, interdependent and integrative. Membership implies that the acquired knowledge, skills and abilities are gradually expanded, deepened and perfected.

Interdisciplinary connection is a broad concept in its essence, which means the comprehensive disclosure of various aspects and properties of the studied materials.

By the nature of the relationship, the relationship between the two subjects, that is, the application and application of the acquired knowledge and methods of action in the first subject in the second.

Integrative communication is a relatively high level of communication, which differs from the previous ones in that it is purposefully included in the curriculum and, of course, requires its provision. As a result, a structurally sound knowledge of the subject allows the formation of ways of working. In order to establish interdisciplinary connections, the content of the study material is analyzed in terms of logic, psychological, didactic, methodological and other aspects.

Great emphasis is placed on the use of integrated learning in the learning process. The structure of integrated lessons requires the accuracy and consistency of the materials being organized at all stages of the organization, thorough organization, and logical interrelationships.

In order to provide students with integrated education, it is necessary to select the most important ideas of the subjects and systematize them according to the students. Integrative materials should be written in simple, plain language and explained in an understandable way. In order to establish interdisciplinary connections, the study material is analyzed in terms of content,

logic, psychological, didactic, methodological and other aspects. Concepts, arguments, laws, conclusions, notions of the constituent material of the study material through structural analysis, which are superficially determined by the analysis of the study material by topic, which topics are related to each other in different subjects.

The organization of education of students on the basis of the electronic educational and methodical complex allows to combine scientific and methodical training. At present, the issues of design and application of electronic educational and methodical complexes are not sufficiently developed in the practice of higher pedagogical education. Electronic educational-methodical complex means a complete set of educational-methodical materials (curriculum, hypertext illustrated textbook, series of virtual laboratory works, information-database, test program, instructional-methodical materials) containing all of these; is a complex teaching tool that performs the functions of motivation, information, diagnosis, correction and supports the learning process at all stages. Two components of goal-oriented formation of professional knowledge and skills through information and communication technologies in students studying in the field of vocational education in higher education institutions: a pedagogical system consisting of technology for the formation of professional and methodological knowledge and skills in students and developmental professional diagnostics developed. During the research, a new approach to the problem of training mathematics teachers was developed:

– ensuring the integrity of professional training in the use of information and communication technologies, while relying on the model of professional and pedagogical activity of a future teacher of mathematics;

– orientation to the formation of normative-practical and creative skills of the future teacher of mathematics in the context of informatization of education;

- realization of subject-subject relations of teachers and students
- attention to the individuality and creative potential of students;
- focus on innovation processes;
- integration and interaction of psychological, pedagogical and methodological knowledge [3].

The main task of a higher education institution that trains mathematics teachers is to create an educational environment that is aimed at training teachers with modern, high pedagogical skills and the ability to carry out innovative activities in the interests of society. From this point of view, it is advisable to start preparing a future mathematics teacher for innovative activities from the first stage of the bachelor's degree. In particular, if the awakening of students' sense of innovation, the development of independent work begins in the early years of school, then in the 3rd stage of teaching pedagogical and psychological disciplines to direct the future teacher of mathematics to innovative activities, At the 4th stage, they will need to develop the skills to independently search for news, select and implement relevant information. The use of person-centered learning technologies is important in the implementation of all these stages. Theoretical analysis of scientific sources has shown that person-centered education allows students to develop skills such as independent learning, communication, cognition, creativity, self-development and expression (existential) [4,5].

Analysis of the historical-pedagogical, psychological-pedagogical and scientific-methodological literature on the problem of vocational guidance in the teaching of mathematics in technical universities shows that improving the preparation of mathematical sciences for the implementation of vocational education is promising. For this specialty, the description for career-oriented teaching of mathematics was clarified, the didactic principles necessary for the implementation of vocational guidance were stated. Students may not be able to integrate their knowledge of mathematics with the knowledge of general and specialized disciplines and use them effectively in design work, course work and graduate work, and strengthen professional orientation in these specialties, which are the development of methodological recommendations for the study of theoretical material and practical training. In the process of teaching mathematics to students

of technical universities, the development of the concept of a methodological system for the formation of engineering activities in them, the main aspects of which are: the structure of the methodological system; its structural principles; integrated description of the system; requirements for forms and methods of work within the system; it is necessary to disclose the structure of the system suitable for engineering activities.

List of used literature

1. National Training Program of the Republic of Uzbekistan. www.lex.uz.

2. Alimov A.A. Improving the Training the Future Teachers of Special Disciplines in Uzbekistan Eastern European Scientific Journal.-Germany, 2016. №1. –P.113- 116.

3. Abduraimov Sh.S. Improving the pedagogical nature of interdisciplinary integration in ensuring the quality of vocational education. Abstract of the dissertation submitted for obtaining the dissertation of the candidate of pedagogical sciences.Tashkent 2017, 24-45 p.

4. Robert I.V. The concept of comprehensive, multilevel and multidisciplinary training of personnel in the informatisation of education. - M.: IIO RAO, 2005

5. N.A.Muslimov, O.A. Kuysinov, F.S.Turabekov, Sh.S.Abduraimov, H.Sh.Kadirov. Electronic textbook on the subject “Vocational training workshop”, State Patent Office, certificate BGU 00204 21.10.2009 .

6. Sharipov, S., & Abdusaidov, S. (2024, March). Actual problems and solutions of mathematical competence development in future engineers. In American Institute of Physics Conference Series (Vol. 3045, No. 1, p. 040033).

7. Sharipov, S. S. (2022). Scientific Analysis of the Role, Essence and Significance of the Activity of Maintaining Public Order in the Life of Society. International Journal of Multicultural and Multireligious Understanding, 9(10), 308-312.

8. Sharipov, S. S. (2022). The Work of Law Enforcement Agencies on the Roofs of Information Technology Activities, Such as the Sector of Reform and Improvement of Results. International Journal of Social Science Research and Review, 5(5), 157-161.

9. Махкамов, Ш. (2024). Davlat boshqaruv tizimining vujudga kelishi hamda davlat va uning moxiyati. Новый Узбекистан: наука, образование и инновации, 1(1), 379-382.

10. Bobobekov, S., & Raxmonkulov, F. (2021). O ‘QUVCHILARNI MA’LUMOTLARNI DESHIFRLASH ALGORITMINI QO ‘LLASHGA O ‘RGATISHNI SODDALASHGAN USULI. Academic research in educational sciences, 2(5), 639-649.