

IMPLEMENTATION OF AN INTEGRATIVE APPROACH IN BIOLOGICAL EDUCATION AS A PEDAGOGICAL PROBLEM

Ibodova M.N.¹, Umarova J.Q.², Malikova A.R.³, Shodiyeva O.M.⁴, Atakulova M.N.⁵, Achilova N.R.⁶, Jo'rayeva D.Yu.⁷, Tilakova Sh. X.⁸

¹Associate professor of the Navoi State Pedagogical Institute, docent

²Associate professor of the Navoi State Pedagogical Institute

³Associate professor of the Navoi State Pedagogical Institute

⁴Associate professor of the Navoi State Pedagogical Institute

⁵Associate professor of the Navoi State Pedagogical Institute

^{6,7,8}Teachers at the Navoi State Pedagogical Institute

ABSTRACT

This article provides information about teaching biology in academic lyceums based on an integrative approach. Also, the essence of the integrative approach, its principles, the theory of using integrative technologies in the educational process, integrative technologies in didactics, the technology of forming teaching methods, the technology of forming students' learning activities, the technology of differentiated learning, educational games. Activity technology, communicative activity technology, modular teaching technology, activity design technology, developments and scientific and pedagogical concepts are noted.

Key words: integration, integrative approach, coherence, interdisciplinary communication, interaction, active teaching staff, skill, direction, principle, integrative technologies in didactics, technology for the formation of educational work methods, technology for teaching students, technology for the formation of educational activities, technology of differentiated learning, technology of educational and gaming activities, technology of communicative activities, modular technology of training.

How to cite this article: Ibodova MN, Umarova JQ, Malikova AR, Shodiyeva OM, Atakulova MN, Achilova NR, Jo'rayeva DY, Tilakova SX. Implementation of an Integrative Approach in Biological Education as a Pedagogical Problem. *Int J Drug Deliv Technol.* 2026;16(50s): 714-717. DOI: 10.25258/ijddt.16.50s.72

Source of support: Nil.

Conflict of interest: None

INTRODUCTION

In addition to innovative, creative, acmeological, andragogical and systemic approaches, today an integrative approach is increasingly used in scientific research conducted in the field of science. A promising aspect of this direction is the integration of a certain system with development ideas. In fact, it is necessary to carry out integrated education based on internal logical connections and deeper methodological connections. Currently, in the philosophy of education, not only the natural adaptation of border sciences is being mastered, but also small continental (one group of sciences with another group of sciences) adaptation.

Currently, special attention is paid to the problem of integration in the education system. By integration in education we mean creative growth in a new active teaching team, the ability to use useful and convenient methods of introducing into the minds of students, which can become the main tool in solving problems related to education and training. The development of the theory of integration in the educational process and the development of scientific and pedagogical concepts are of paramount and important importance.

Analysis of literature on the topic (Literature review). A number of scientific studies are being conducted on the use of integrative pedagogy to improve the quality and effectiveness of education, and the implementation of an integrated approach to the integration of educational processes. It is especially important to improve the content of

education based on the application of themes and interdisciplinary integration, as well as to introduce modular integration of the systematization of educational materials based on the principle of consensus. Some aspects of integrated educational interdisciplinary connections were developed by famous teachers (Yu. Komensky, D. Locke, I. Herbart, M. Pestalozzi, K. Ushinsky, etc.), didactics (I. D. Zverev, M. A. Danilov, V. N. Maksimova, S. P. Baranova, N. M. Katkina, etc.), is considered in the works of psychologists (E. N. Kabanova, Meller, N. F. Talizin, Yu. A. Samarin), methodologists (V. G. Goretsky, Yu. M. Kolyagin, M. R. Lvov, N. N. Svetlovskaya). Currently, there are different views on the problem of studying integrated pedagogy. A number of works are devoted to interdisciplinary and intradisciplinary connections (G.N. Akvileva, G.V. Baltyukova, N.Yu. Velenkin, N.M. Druzhnina, R.G. Matyushova). R. Mavlonova, R. Safarova, E. Turdikulov, M. Mirgosimova, A. Musurmonov, P. Musaev, A. Choriev, K. A. Abdurakhmonova, R. Burkhanov on issues of interdisciplinary communication and organization of an integrated educational process in our republic, scientists such as T. Nurid Dinov carried out research work.

In these studies, from a scientific and practical point of view, various directions and principles of interdisciplinarity, their use in mastering individual subjects in the educational process, and requirements for the content of education based on interdisciplinarity have been studied. Among foreign scientists J. Gilbert, F. Cochran, J. W. Gray, M. Trott, R. J. Gaylord, the advantages and possibilities of

using integrative educational technologies are highlighted. In these scientific studies, special attention is paid to various aspects of teacher training: preparation for innovative pedagogical activities, the possibilities of using information and communication technologies in education, and the creation of an integrative environment.

Research Methodology. In modern pedagogical practice, research continues on the integration of education based on interdisciplinary communication. This task is extremely difficult and at the same time very effective. At the moment, an integrative organization of the educational process, improvement of integrated educational technologies, clarification of the content and teaching methods are required, taking into account the requirements of concentrated and modular education.

The study of integrated pedagogy is based on the following principles: greater humanization of the educational process; system integration of sciences related to the educational process; implementation of the formation of the student's personality through comprehension of scientific knowledge; priority of the influence of scientific knowledge on the way of thinking of students.

Integration is the bringing together and connection of these disciplines in the process of differentiation. The integration process is the stage of connecting connections between disciplines in a new, high quality and manifests itself in high quality. It should be noted that the foundations of the integration process are based on folk pedagogy and scientific pedagogy of the distant past. Educator Jan Amos Komensky argues that everything that is related to each other should be studied in connection. Genetically, integration is coherence, interdisciplinary connection, interrelation and, finally, a form of content that complements, expands and deepens each other, synthesizing the content of educational subjects at least at the level of educational standards, and a logically completed form. content and is the highest level. Since any lower level of interdisciplinary communication is established between individual didactic units within the subjects being studied and ensures the consistency of their content and learning conditions, in contrast, organized on the basis of integrative communication requires the interpretation of an educational subject or a holistic subject, phenomena or processes in the form of an integral system with points of view of interconnections and relationships.

The integrative approach is carried out by identifying (classifying) all the important aspects and features of the object being studied, understanding its essence and content, and generalizing them. Therefore, integration always develops on the basis of differentiation (differentiation), which is its reverse side.

Thanks to integration, a new psychological process, a new structure of activity is created. This new structure is created by synthesizing previously separate elements. The integrative approach is used to integrate educational subjects that are related,

interconnected, logically mutually demanding, deepening and expanding each other, and provides for the formation of logically perfect knowledge, work methods and personal qualities.

The following principles are observed in integrated education:

- the principle of systematic learning, humanization of the educational process
- principle, the principle of relying on pedagogical cooperation;
- consistency of integration with differentiation;
- orientation of the educational process towards a specific goal;
- orientation of integrated education towards the teacher;
- focus on activating students and shaping an ideal personality.

INTEGRATIVE TECHNOLOGIES AND METHODS OF THEIR USE

The XXI st century has become an era of profound reforms in didactics, including teaching methods. The goals of general secondary education have changed, new educational concepts and curriculum standards have been created. It is proposed to approach the description of the content of education on the basis of a new integrated education, and not through individual academic subjects. The increase in the number of subjects studied in the school curriculum has led to a reduction in the time allocated for studying some subjects, including natural sciences such as biology, geography and chemistry. This, in turn, created the problem of finding a solution to integrate the system of natural science knowledge, updating organizational forms, methods and means of teaching it. The solution to this problem is closely related to the effective use of new pedagogical technologies in the educational process. Modernization of education requires the use of non-traditional organizational forms and methods, including an integrative approach to it. Integration should be understood not only as the interconnection of knowledge acquired in different subjects, but also as the integration of technologies, methods and forms of teaching. Their correct implementation ensures the effectiveness of education. The term "technology" is borrowed from foreign methods and is used to refer to the educational process organized in various forms. In the process of solving didactic problems, educational technologies are effectively used in order to improve methods of influencing students. There are many types of pedagogical technologies, and they are interpreted differently. In didactics, technologies are divided into three main groups. It is necessary to use technology as an integrative one in accordance with the purpose of the lesson, based on the possibility. This can be illustrated by the following table "Integrative technologies in didactics".

INTEGRATIVE TECHNOLOGIES IN DIDACTICS

1. Illustrative and explanatory teaching technologies are aimed at developing students' general educational activities, knowledge and skills related to special subjects.

2. Personality-oriented educational technologies aimed at personal self-development.

3. Developmental learning technologies are education aimed at the personal development of each student and the use of internal mechanisms.

Each of these groups embodies a number of pedagogical technologies. For example, student-oriented technologies - differentiated learning, mutual collective learning, technologies for complete knowledge acquisition, modular educational technologies that take into account the individual characteristics of each student and teacher and allow improving methods of student interaction. Currently, in the comprehensive teaching of natural science subjects, prof. I.V. The technologies described by Dushina are widely used

TECHNOLOGY FOR FORMING METHODS OF EDUCATIONAL WORK.

It is expressed in the form of rules, patterns, algorithms, formulations of plans and descriptions of something. This technology is sufficiently reflected in the methodological apparatus of a number of textbooks, and many teachers have mastered it well through work experience. For a teacher just beginning his teaching career, it is advisable to first pay attention to this technology and master it.

TECHNOLOGY FOR FORMING STUDENTS' LEARNING ACTIVITIES.

The essence of this technology is that learning activities in it are considered by students as a separate type of learning activity. It aims to acquire knowledge through learning tasks. At the beginning of the lesson, students in the class are offered learning tasks and they are solved during the lesson. At the end of the lesson, according to the assignments, the acquired knowledge is tested using tests.

The teacher creates a system of educational tasks for the course (department, topic), develops projects for his own activities and the activities of students interconnected with them.

TECHNOLOGY OF CLASSICAL EDUCATION.

In this technology, students are divided into groups according to their typological characteristics. When dividing into groups, students' personal attitude to learning, interest in studying the subject, etc. are taken into account. Multi-level programs and teaching materials are created that differ from each other in content, volume and complexity. Separate materials have been prepared on methods of their implementation, as well as on assessing educational results.

TECHNOLOGY OF EDUCATIONAL GAME ACTIVITIES.

This technology is very close to the technology of differentiated learning and is inextricably linked with it. An educational game gives its positive results only if the teacher and students are active. In this case, you should develop a game scenario in advance and plan methods for evaluating the results. A well-thought-out game scenario is very important. It must clearly define educational tasks and identify the possibilities of methodological ways out of a difficult situation.

There are many types of games, and using them effectively can achieve the goal.

TECHNOLOGY OF COMMUNICATION AND DISCUSSION ACTIVITIES

This method also depends on the ideal organization of the educational process by the teacher. It requires the teacher to have a creative approach to organizing the educational process. The teacher must master the techniques of heuristic conversation and be able to create conditions for organizing student interaction.

TECHNOLOGY FOR ACTIVITY DESIGN.

The content of this technology is the organization of research activities. Activity design technologies can be creative, educational, fantastic, research and others. Thus, as a result of using these technologies in the integrated educational process, the teacher makes this process more complete, interesting and meaningful. Integration at the intersection of subject areas of natural science is very important for the formation of a holistic worldview and understanding of the world as a whole.

Thus, the skills of the teacher and students in working with a computer will increase, time will be saved, and the effectiveness of the lesson will be achieved.

Analysis and results (Analysis and results). A conclusion is made about the didactic features of the integrated technology (orientation to the student's personality, management of educational and cognitive activities, concentration, cooperation, creativity), the subject of the educational subject, basic concepts and knowledge, skills, professional competencies, internal integration. with lim goals (educational, educational, developmental) is manifested by the achievement of dynamism. Also, based on the developed criteria for assessing the effectiveness of education through integrated learning (development of basic concepts from simple to complex, problem situations and the use of combined methods, concise, excellent information on recommended scientific sources on topics of expression of complex ones), the use of vertical and horizontal integration of subjects, methodological component of the didactic model for organizing an integrated pedagogical process in education, the structure of an integrated lesson (adaptive), practical, generalized, reflective) improvement in accordance with the level of intensification, improvement The criteria and parameters for achieving integrated educational results are important.

List of used literature

1. Mavlonova R.A., Rakhmonkulova N.Kh. Pedagogy of primary education, innovation and integration. - T.: Voris-nashriyat, - 2013. - P. 10-35. 21.
2. Mirkosimova M.M. Academic subjects in distance education principles of integration // Education and innovative research (2020 No. 1). pp. 69-80.
3. Yulbarsova H.A. Future teachers based on an integrative approach Technology of formation of communicative competence: ped. science. lie according to doc. (PhD) diss. – Arzamas, 2020.

- 4.M.N.Ibodova Akademik litseylarda biologiya fanini o'qitishda integrativ texnologiyalardan foydalanishni tashkil etishning metodik tizimi. Uzluksiz ta'lim Тошкент . 2023 y. № 6 Б- 126-129 bet .
- 5.M.N.Ibodova Improving the methodology of using OF electronic educational Resources in improving the effectiveness of teaching the subject "ZOOLOGY" In pedagogical higher educational institutions International scientific research journal ISSN: 2776-0979, Volume 4, Issue 3, Mar., 2023
6. M.N.Ibodova. Akademik litseylarda biologiya fanini o'qitishning integrativ texnologiyalarni takomillashtirish. O'zMU xabarлари. Vestnik NUUZ ASTA NUUZ Mirzo Ulug'bek nomidagi O'zbekiston milliy universiteti ilmiy jurnali 2023 y 1/12/2 B 93-96
7. M.N.Ibodova. Akademik litseylarda biologiya fanini integrativ yondashuv asosida o'qitishning didaktik modeli Ibodova O'zMU xabarлари. Vestnik NUUZ ASTA NUUZ Mirzo Ulug'bek nomidagi O'zbekiston milliy universiteti ilmiy jurnali 2024 y 1/8/1 B 104-105
8. M.N.Ibodova. Kooperativ ta'lim asosida biologiya fanini o'qitishda o'quvchilarning integrativ yo'naltirilgan bilimlarini shakllantirishning metodik shart - sharoitlari INTER EDUCATION & GLOBAL STUDY Ilmiy-nazariy va metodik jurnal BUXORO – 2024 ISSN 2992-9024 (online) 2024, №6 192-199 b.
- 9.M.N.Ibodova. Conceptual Framework for the use of integrative technologies for teaching biological sciences in academic lyceums. European Journal of Research and Reflection in Educational Sciences Vol. 11 No. 4, 2023
- 10.Umarova J. K. Digital technologies and their role in education JMEA Journal of Modern Educational Achievements 2023, Volume 11