

## BIOLOGICAL TEACHING EFFECTIVENESS, TEACHING AND THE IMPORTANCE OF INTEGRATIVE TEACHING

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**Abstract.** *The impact of the integrative approach of students on the quality of students' knowledge and skills has been revealed. In the process of education, it ensures that the process of preparing future biology teachers for professional and pedagogical activity is directly related to the specific features of the integration of pedagogical knowledge. In the content of the article, the ways to acquire knowledge, skills and abilities in the fields of pedagogic theory and methodology, pedagogical technologies, psychology and pedagogical skills are highlighted in the preparation of future biology teachers for professional and pedagogical activities.*

**Keywords:** *didactic principles of teaching biological subjects, integrative approach, pedagogical knowledge, skills and abilities, professional pedagogical activity.*

**Introduction.** In recent years, systematic work has been carried out in the country to improve the quality and efficiency of the education system, to form modern knowledge and skills of kindergarten students, pupils and students, to ensure close cooperation and integration between educational systems and the field of science, and to ensure the integrity and continuity of education. Fundamental improvement of the education system in the decree of the President of the Republic of Uzbekistan "On measures to develop education and science in the new development period of Uzbekistan" No. PF-6108 and "On additional measures to further improve the education system" tasks such as methodically improving the use of the interdisciplinary approach have been defined. In order to implement these tasks, the implementation of integrated education in all stages of continuous education, the methodical research of teaching based on innovative technologies based on the integrated approach in the content of biological education, like all subjects, determines the relevance of the development of the field of pedagogy.

According to the requirements of the time, relying on the work experience of developed countries, a lot of research work was done on solving the problem of integrative teaching of specialized subjects in higher pedagogic education. It is assumed that the integrated technologies of biological education, which we recommend, will have a significant positive effect on the efforts in this direction. A positive solution to the problem allows students to comprehensively study the essence of science, to create a complete system of perfect knowledge, and to form a well-rounded person.

**Analysis of literature on the topic. (Literature review).** B.Abdullaeva, Z.E.Azimova, G.R.Alimatova, S.Alikhonov, S.T.Alikulov, I.V.Makukhina, Kh.B.Norbo'taev, A.A.Salomov, A.Ch.Choriev, A.V.Usova in research works explained, the ways of using the main principles of didactics were explained. Theoretical and practical issues of future specialist teacher training in CIS countries V.M.Balyaykina, T.A.Maskaeva, M.V.Labutina, N.D.Chegodava, M.G.Danilchenko, I.G.Kulagin, N.V. Studied in the works of Malekhov, L.M. Pancheshnikova.

R.B.Lotshtein and N.I.Gorbachova's researches have studied the possibilities of social sciences taught at the faculty of history in the professional level of teachers' acquisition of oral and

written speech in increasing the effectiveness of preparation for independent learning based on an integrated approach in the training of future teachers, and the use of acquired knowledge in the practice of teaching and upbringing [1]. I. Pestalotzi, I. Herbart, A. Disterverg and other pedagogues expressed their opinions about connections in teaching subjects. They saw the connections between disciplines as a way for learners to gain a deeper understanding of the diversity and integrity of the world around them. The school believes that the mental activity of students is directly related to the connection between academic subjects. A. Disterverg also spoke about the necessity of interdisciplinarity in the study of different educational subjects [2]. It is important to take into account the issues of organizing the educational process on the basis of innovative educational methods, which will be necessary in the future of the students of higher education institutions in their activities in schools [3]. In the scientific works of our country's pedagogic scientists A. Abdugadirov, U. Sh. Begimkulov, R. Joraev, N. S. Sayidakhmedov, Sh. S. Sharipov, R. G. Isyanov, N. A. Muslimov, E. R. Yuzlikaeva the wide use of modern pedagogical and information technologies in the educational process in higher education institutions, an innovative approach to the role of motivation in ensuring educational effectiveness; unity of empirical and theoretical ideas in scientific research and other scientific problems theoretical foundations are reflected.

**Research methodology.** In order to ensure the training of stable and competitive personnel in our republic, the problem of "improving the process and methods of evaluating the quality of education, putting into practice the mechanisms that allow determining the achieved results", "organizing an effective educational process based on an integrative technological approach in the areas of biology" in order to improve the methodological training of future biology teachers, and improving professional training requires significant relevance. After all, to develop students' intellectual abilities for the purpose of work introduction of education based on an integrative approach defines a unique pedagogical technological approach. We know that integration in education - a high level of interdisciplinary communication, serves as a pedagogical factor influencing the implementation of a technological mechanism that allows the creation of a whole integrated knowledge. The basis of integrative technologies is interdisciplinarity, and the study of subjects is considered as a factor that ensures the integrity of specialist knowledge, working methods, and personal qualities.

Peculiarities of pedagogical technologies used in teaching biology, levels, groups, ways of organizing and managing students' cognitive activity, individual approach to students, local and special methodological level in teaching biology: didactic-game, modular, problem-based education, cooperative teaching, design technology teaches ways of use. Therefore, if we analyze the subjects from the content, the knowledge, skills and abilities that shape the pedagogical activity of the students require composition based on the principle of membership and consistency. In pedagogy, membership, inter-subject communication, mutual communication are interpreted at the levels of integrative communication. Membership - advanced education involves the deepening and improvement of skills and abilities.

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<sup>1</sup>Incheon declaration/Education 2030: Towards inclusive and equitable quality education and lifelong learning for all (Word Education Forum, May 19-22, 2015, Incheon, Republic of Korea). - 48 p.

<sup>2</sup> Decision of the President of the Republic of Uzbekistan No. PQ-4805 of August 21, 2020 "On measures to increase the quality of continuous education and the effectiveness of science in the fields of chemistry and biology". // National database of legal documents, 13.08.2020, No. 07/20/4805/1174.

**Analysis and results.** And the integrative approach is a creative and research-research activity aimed at organizing a comfortable educational environment in accordance with the future teacher's professional knowledge, skills, practical methods of work and the wishes and needs of ensuring the integrity of personal qualities and qualities, as well as the goals and tasks of providing them with education. [4]. K. D. Ushensky says about the psychological-pedagogical nature of the didactic influence in the past pedagogy and the psychological-pedagogical connection: "Knowledge and ideas reported by any science should be given to the world and life in a broad and enlightening way." Educator U. Musaev offers the following different levels of integration [ 5 ] . Integration based on sequential presentation of topics; in this case, the principle of concentricism is followed in the presentation of educational materials, that is, the previous educational material complements the next one. From the analysis of the studied literature, it is known that the introduction of education based on an integrative approach in the establishment of connections between educational subjects and their integration, from time to time one or another subject serves as a base.

***System of didactic functions of integrated educational technology***

**Integrative educational technology content**

Didactic purpose: to monitor education, to continue to systematize knowledge, to master the material, to determine the level of formation of skills and abilities.

Task: acquiring new knowledge, logical, analytical thinking, creativity, self-control, and independent activity based on the methods of interdisciplinary study.

Educational purpose: in classes determining the level and quality of acquiring knowledge and skills from the subjects; summarizing the material as a system of knowledge; test of the ability to conduct creative, intellectual and independent activities, work with assignments

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Integrative talim technologysi methodlari: boomerang method, exclusive method, composition method, haritasi methodi va synchron characterdagi methodlar

Forms of education: lectures, laboratory and practical work, independent education

Tools: textbooks, didactic handouts with integrative content, demonstration tools, visual videos, presentations, etc.

In our opinion, in the organization of education based on the approach to integrative education technology, it is important to organize the educational process based on the selection of integrative plans, problematic and creative lecture texts, and educational tools. In this process, it

is necessary to establish a system of didactic functions in the integrative educational technology that strengthens the biological knowledge that the student needs to learn and develops learning activity (Fig. 1).

### **Teaching forms**

The pedagogical task defined in this didactic system is intended to create an opportunity for students to acquire biological knowledge, skills and abilities, along with highlighting biological concepts at a motivational, creative, productive and adaptive level by establishing an integrative technological systematic management of the teaching process.

**Summary and suggestions.** Biological knowledge, skills and competences that students should master on the basis of integrative educational technology in order to implement it, it is necessary for them to acquire professional competence, which includes pedagogical ability. The following are the knowledge that professional competence needs to be mastered in relation to pedagogical activity:

the logical structure of biology teaching methodology and biology teaching technologies and design science module, the content of the studied science, theories; modern principles of content selection and composition natural science education; basic principles, methods and forms of scientific knowledge that are components of the content of natural science education; functions of interdisciplinary communication; classification of interdisciplinary relations; In the application of teaching biology, it is important to acquire knowledge, skills and competences about the application of modern technologies, relying on pedagogical and psychological knowledge.

It is appropriate to make the following recommendations based on an integrative approach in teaching biology:

to develop on the basis of educational motives by applying creative activity methods in technological exercises based on an integrative approach in the process of biological education;

effective use of functional, creative, adaptive, productive tasks in building biological knowledge, skills and abilities of students based on an interdisciplinary integration approach.

the knowledge, skills and skills acquired in mastering the studied subjects, aiming at the quality of systematic assimilation of knowledge by students, as well as the decisive role in increasing the productivity of teaching the basics of subjects in the system of educational subjects.

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