

# SCIENTIFIC AND THEORETICAL BASIS OF IMPLEMENTING THE COMPETENT APPROACH IN BIOLOGY EDUCATION

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## ABSTRACT

Competence requires the ability of the student to constantly enrich his knowledge, absorb new information, feel the demands of the present, search for new knowledge, process it and use it in his practical work. Students with high competence can independently use the acquired knowledge, skills and abilities in their practical activities. Therefore, the introduction of competency-based approaches to the biology education processes of secondary schools and the achievement of educational efficiency are among the important tasks of today's education system. In this article, the scientific-theoretical basis of the introduction of competency-based approaches to biology education is highlighted, the concept of competency-based approach, the opinions of scientists who have researched the problem of competency-based approach, types of competency, and the principles of increasing the level of competence of students in biology education are highlighted.

## INTRODUCTION

In the 21st century, education on a global scale is recognized as the main factor that ensures sustainable development, and in the new education concept set by most countries until 2030, the process of "creating the opportunity to receive quality education throughout life" is defined as an urgent task. For this purpose, in our republic, special attention is being paid to the further improvement of the teaching methodology, the gradual application of the principles of individualization to the educational processes, and the introduction of modern information, communication and innovative technologies into the educational system [1].

Varying forms of teaching based on the competence approach, application of the theoretical knowledge given to students in everyday life, adaptation of the guaranteed results of education to the requirements of competence are considered urgent issues. In this place, increasing the effectiveness of teaching natural sciences, consistently improving its organizational and methodological support, improving the practical aspects of educational processes in the conditions of an innovative educational environment, and developing the competence of teachers in teaching biological science are international qualification requirements. special attention is being paid to issues of carrying out on the basis of, raising the quality of biology education to the international level, carrying out diagnostics of the level of development of practical activity skills. In particular,

the adoption of the Decision of the President of the Republic of Uzbekistan No. PQ-4805 of August 8, 2020 "On measures to increase the quality of continuous education and the effectiveness of science in the fields of chemistry and biology" indicates the urgency of the task of organizing natural sciences, particularly biology, based on a competency approach and increasing the effectiveness of education in our country.

Today, a lot of scientific research is being conducted on education based on the competence approach. Scientists such as O. Musurmonova [2], U. Inoyatov [64], N. Muslimov [3], B. Khodjayev [4], M. Mirsoliyeva [5] paid great attention to the development of theoretical issues of the competitive approach and their proposal, developed recommendations.

Scientists who studied the problem of the competence approach defined the concept of competence through competence. Therefore, first of all, we will comment on the concept of competence.

The concept of "competence" was first used in 1965 by N. Chomsky. In his work "Aspects of Syntax Theory", he proposed to apply this concept, which serves to describe some idealized objects that are expressed in ideal conditions of activity [6].

It should be noted that N. Muslimov states that competence is the professional knowledge necessary for the implementation of professional activities of personal and social importance in the professional activity of future specialists and the ability to

perform them in the professional activity [3]. Also, the concept of "competence" has two features:

- competence is a set of personal qualities of future specialists

- appear as the basic qualities of professional knowledge. In pedagogy, the term "competence" is a summation of a new summary of the pedagogical and psychological characteristics of a person arising from the process of adaptation to any life conditions, the rapid change of human and economic processes.

Researcher O.E. Lebedev researched the issues of competence approach, implemented the competence approach in the educational process - in the original idea of the competence approach, from the result - formed education, from the process of adaptation to life conditions, the mechanisms of the organization of educational results and the psychological features, principles. defines it as "indisi" [7]. So, in the original idea of the competence approach, the content of education, which is formed from the result, is understood. Competency approach is often mistaken for labor, labor training that can show results by teaching actions and implementing them.

O.E. Lebedev defined the main principles of the competence approach and explained it as follows.

- the essence of the educational process is to use life and social practical experience, which is considered to be a collection of personal practical experiences of future specialists, and in most cases, the competence approach to work, teaching actions is considered to form the ability to think independently, to advance the principle of labor readiness;

- in the educational process, it is considered to reflect didactic principles, social-political, professional-methodical problems, as well as adapted life experiences, specific to work, actions, worldview formation;

- in the course of education, it is necessary to create clear conditions for the development of independent practical experiences of life problems that make up future specialists' general characteristics of knowledge, communicative, organizational, moral-cultural, socio-political, professional-

Table 1.

**An explanation of the main concepts of the competence approach**

№	Competency approach concepts	The essence of concepts
1.	Competencies in the cluster approach	Competencies for working with information, competencies for achieving success, competencies for working with people, competencies for self-improvement [10]
2.	Methodical competencies	Objective competence, substantive competence, monitoring competence [11].
3.	Competence	1) integral feature, personality description; 2) successful operation in a certain field, situation; 3) the ability of a person to realize his potential in professional activity [12].
4.	Competence to work successfully with information	Work culture, communication, professional-methodical, ability to solve, creative solution using the realization of one's capabilities in the work process is understood. [13]
5.	Professional-methodical competence	In this case, conducting activities based on the interdisciplinary, i.e., integrative criterion of professional-methodical training, the performance of functions, high level of work culture, communication skills, and the ability to creatively solve professional problems are characteristic qualities of a person. [14] .
6.	Competency	From the point of view of activity: reflexive competence, cognitive competence, communicative competence, social competence From the point of view of activity: reflexive competence, cognitive competence, communicative competence, social competence [15].
7	Competency	Modernization of educational content is the central concept and unites those who organize the educational result [16].
8	Competence	... specific abilities necessary for effective implementation of a certain action in a certain field of science, including highly specialized knowledge, skills, ways of thinking, as well as a sense of responsibility for one's actions [17].
9	Competence	the ability to constantly develop knowledge as a dynamically changing phenomenon, to be able to use methods suitable for certain times and conditions, to be able to think creatively in choosing the most effective and optimal solution among many solutions [18].

The emergence of a competency-based approach is a development pattern associated with the search for ways to bring the education system closer to the ever-changing needs of society. According to E. Y. Kogan, the idea of a competency-based approach is "a fundamentally new approach that requires a rethinking of the teacher's position." Such an approach leads to global changes

methodical and other educational processes;

- evaluation of the results of future specialists in the educational process is a feature based on the analysis of the levels of scientific information achieved at a certain stage of education.

I.A.Zimnyaya summarized the research on the problem of competence approach and divided its development into three stages [8]:

- the first stage (1960-1970s) is characterized by the introduction of the "competence" category into the scientific apparatus;

- the second stage (1970-1990s) is characterized by the use of the categories of "competence" and "competence" in the field of management;

- the third stage (1990-2001) is characterized by the active use of the "competence" and "competence" categories in education.

There are different ways of classifying the types of competence. For example, N.A. Muslimov and M.B. Urazova divided competencies from the point of view of professional education into the following several types [9]:

- special competence - mastering one's own professional activity at a sufficiently high level, being able to plan further professional development;

- personal competence - methods of personal independent reflection and independent development, a person's acquisition of tools to resist professional deformations;

- social competence - mastering joint professional activity, cooperation, social responsibility for the results of one's work;

- individual competence - acquisition of individuality within the profession, methods of independent application and development, professional and personal growth, independent organization and preparation for independent rehabilitation;

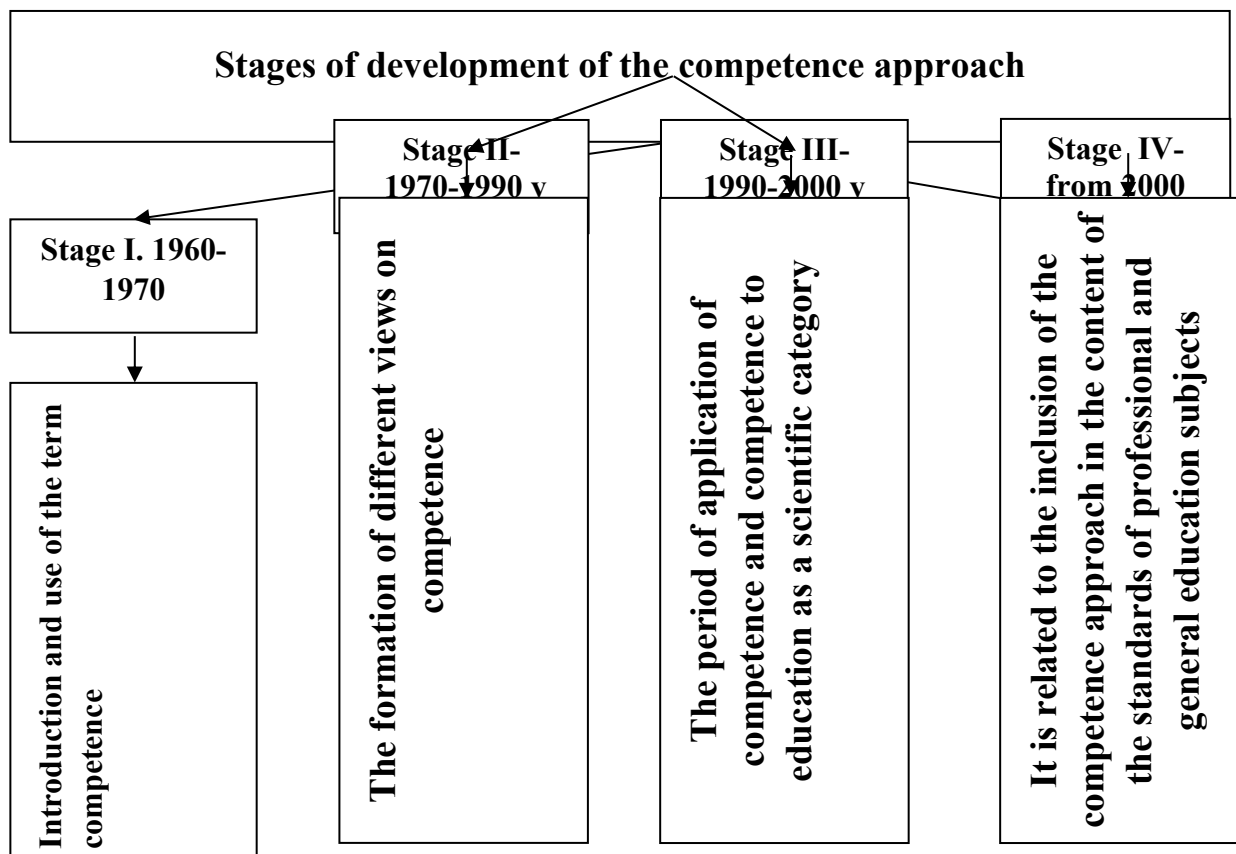
- basic competences - intercultural and intercultural knowledge, abilities and skills of a person necessary for adaptation and productive activity.

The following table provides an explanation of the main concepts of the competency approach (Table 1):

ranging from a change in consciousness to a change in the methodological base [19].

The introduction of the competence problem into the field of education and the history of its development can be conditionally divided into four stages (Table 2).

Table 2  
Stages of development of the competence approach



Competency-based learning outcomes and the competency-based approach (competency-based education) are gaining more and more prominence in the education system due to their frequent use in international documents. The influence of the competence-based approach in forming a new culture of assessment includes a shift from knowledge assessment to competence assessment as a dominant feature.

A group of scientists led by I.N. Kuzmin stated that "an innovative methodical reconstruction is required to assess the quality of knowledge, skills, and abilities to be acquired tomorrow." [20]. According to J. O. Tolipova, the competence approach in education means teaching students to effectively apply various types of skills acquired in situations encountered in their personal, professional and social life [21].

Also, effective approaches have been developed by foreign scientists to solve the problem of development of knowledge, skills, and competencies of students in the teaching of biological science [22].

The following definition of competence approach is given in the scientific works of biologist I.T. Azimov: "Competence approach is the formation of all-round competence in human activity, which is considered the main condition of modern society and education. This requirement directly affects the activity of teachers-pedagogues" [23].

The essence of the competence approach in biology education can be divided into the following features:

- consciously create life situations that allow students and teachers to master various types of activities, help to form basic competencies and master social experience;
- implementation of competency-based learning technologies that require demonstration of key competency levels.

According to scientific pedagogical and psychological sources, competence and competency are very complex, multi-part concepts common to many disciplines. Therefore, its

interpretations are different both in terms of volume and content, as well as in terms of meaning and logical content. The essence of the term is also based on concepts such as "efficiency", "adaptability", "achievement", "success", "comprehensibility", "effectiveness", "readability", "property", "property", "quality", "quantity". is also described.

The following principles of development of students' competence are distinguished in biological education.

The principle of scientism requires that biology students be provided with scientifically based, empirically tested information for learning. The latest achievements and discoveries of science and technology should be used in their selection. In the process of acquiring scientific knowledge, students develop a scientific outlook and thinking. The scientific content of the educational material taught in each lesson should be broad and deep, and it should not only create knowledge, but also thinking in the student and form the creative ability of the student. For this, the teacher should consistently improve his scientific level, be aware of the discoveries of modern pedagogical technologies and scientific innovations. The knowledge that students learn must be theoretically confirmed and tested in practice.

The principle of systematization is the systematic description of knowledge and skills that students should master in biology - new knowledge, skills are connected with previously mastered knowledge and skills. It consists in expanding and deepening the range of concepts and imaginations of students, studying the material by dividing it into parts, and developing the logical thinking skills of students by separately expressing their main aspects and general idea. At the heart of the systematic approach is a systematic movement from simple to complex, from old to new, from knowledge to skill, and from skill to skill.

The principle of integrativeness means taking into account the acquired knowledge, skills, qualifications and experience of students from biology, ensuring the flexibility of the educational

content, relying on it, integrating it, and creating the most favorable conditions for the development of professional communicative and social competence. . Integrativeness and interdisciplinarity, which is intended for the integration of disciplines at the level of content and technology. Also, the principle of integrativeness is aimed at the holistic perception of knowledge, the existence of interdisciplinary links and connections in the context of integrating the material of various scientific fields. We consider pedagogical integration as the process of unification of goals, content, principles, forms of organization of the educational process, as well as the creation of large modules in the interaction of the components of the educational process.

The principle of awareness - awareness requires students not only to express definitions, from literature, etc., but also to understand the topic related to life events and processes. Otherwise, knowledge will become superficial, in which the material will be memorized. Such knowledge is quickly forgotten. In addition, the conscious assimilation of knowledge includes the formation of a certain attitude towards this knowledge in students, and the awakening of emotional experiences.

The principle of activity - we know well that education is two-sided. In the educational process, the pedagogue acts as a guide, and the students experience the learning process themselves. The learning process is a complex psychological process that requires a certain activity from the student. No matter how much the teacher organizes the educational process in a meaningful, interesting and skillful way, if the student does not express a certain activity, it will not be possible to achieve results in the educational process. Therefore, it is necessary to awaken students' activity in the educational process. This activity affects the cognitive process, starts psychological processes such as perception, analysis, analysis and synthesis. Motivations are important in creating a state of activity in students.

The principle of the unity of theory and practice - the main goal of education is to prepare young people for independent life, that is, to bring their knowledge, skills and abilities to the level of practical application in various life conditions. Therefore, in the process of education, we should not only equip students with scientific knowledge, but also ensure that they are able to apply this knowledge in practice. Therefore, this principle is in harmony with the principle of the scientific nature of education, and they complement each other. If the scientific nature of education serves to study knowledge theoretically, to understand logical connections, to develop thinking skills, then practical and laboratory training, project work and excursions help to apply this knowledge in practice, to develop skills and competencies. helps to make and form.

The principle of a positive attitude to the activity provides for the correct organization of the pedagogical activity of the students, their interest in this activity, the content of the tasks, the technology, and the positive relationship in the implementation. Today, the word competence is ability, competence is ability, and the competence approach to education is considered to be an educational direction aimed at forming the ability to apply acquired knowledge, skills and abilities in personal, professional and social activities. Education based on the competence approach is characterized by the preparation of students to use the acquired information in standard and non-standard situations of educational and life activities.

The main essence of teaching based on the competence approach is to form the competencies to use the knowledge, skills and abilities acquired by students in the educational process organized by subjects in their personal life, as well as in their future professional and social activities. is counted In the course of their future life, students should enter into personal and social relations, take their place in society, solve the problems encountered in this process, and most importantly, acquire basic competencies.

Competencies formed in students are divided into three levels:

1. Basic competencies;
2. General (subject) competencies;
3. Private competencies.

Competencies that prepare the ground for the general development of a student's personality are called basic competences, and competences that are formed only through the subject of study are called special competencies. It is known that through the educational process, general secondary schools are responsible for providing students with basic competencies, including communication, the ability to work with information, self-development as a person, socially active citizenship, general cultural, mathematical literacy, to be aware of science and technology news, and to form competences for use.

Modern approaches provide for the formation of basic and subject-specific competencies in students through the mutual integration of pedagogical and information technologies in the teaching process.

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