European Journal of Humanities and Educational Advancements (EJHEA)
Available Online at: https://www.scholarzest.com
Vol. 4 No.11, November 2023
ISSN: 2660-5589

CURRENT CHALLENGES IN BIOLOGY EDUCATION PEDAGOGY: AN ANALYSIS OF CONTEMPORARY METHODOLOGICAL ISSUES

B.B. ABDRAIMOVA
D.SH.ESHONQULOVA
Tashkent State Pedagogical University named after Nizami

Article history:

Received: September 26th 2023
Accepted: October 26th 2023
Published: November 30th 2023

Abstract:

The aim of contemporary biological education is to equip individuals with both biological and environmental literacy, fostering an understanding of life as the paramount value. In the modern era, irrespective of their chosen future endeavors, individuals must possess the capacity to establish relationships with nature founded upon respect for both humanity and the environment.

Keywords: learning, biology, modern technologies, teaching problems.

The modernization of the biological education system necessitates the incorporation of innovative ideas, approaches, modern technologies, and the accumulation of pedagogical experience. As we transition from a subject-oriented teaching model to a personality-oriented learning paradigm, it becomes imperative to restructure the methodological framework of educators.

School biology, as a structure-oriented subject, offers a platform for the development of skills that enable students to comprehend their personal orientation within real-world contexts through active engagement. The diverse array of objects and processes explored in biology lessons presents vast opportunities for the cultivation of general knowledge and critical thinking abilities. Within the realm of biology classes, there exists room and time for both hands-on experience and thoughtful dialogue, encouraging the exploration of interpretational ambiguities and the consideration of diverse viewpoints. Biology holds significant development prospects in various specialized schools. In humanities classes, biology is esteemed for its connection to the natural world and the essence of life. Meanwhile, for classes with a mathematical orientation, this subject offers a vast domain of exploration, encompassing calculations involving formulas in population genetics, protein diversity, and more.

In the current educational landscape, school biology is not solely a subject rooted in structure but is also meaning and position-oriented. While teachers today have access to a multitude of resources for teaching biology, they often lack the requisite knowledge and skills to effectively choose appropriate forms and methods for educational instruction when confronted with situations necessitating individualization or, at the very least, differentiation of the learning process to ensure academic success for particular students or student groups.

The methodology for teaching biology is rooted in pedagogical principles shared across all school subjects concerning the exploration of biological material. Simultaneously, it integrates specialized knowledge in the natural sciences and biology, psychological insights, pedagogical strategies, ideological considerations, cultural elements, and various other professional and pedagogical knowledge, skills, and attitudes.

The methodology for teaching biology establishes the educational objectives, defines the content of the subject "Biology," and outlines the principles guiding its selection. Methodologists contend that shaping the desired aspects of modern school biological education hinges on the value system, which is determined by:

- The level of education, namely, the acquisition of biological knowledge, skills, and abilities that facilitate the active and comprehensive engagement of schoolchildren in educational, occupational, and social activities;
- The level of education, which characterizes the system of worldviews, beliefs, and attitudes toward the surrounding world, nature, society, and the individual;
- The level of student development, which influences their abilities and the necessity for self-improvement and the enhancement of both physical and mental attributes.

The goal of general secondary biological education is established with consideration for these values and factors, including:

- The integrity of the human personality.
- Predictiveness, which entails aligning the objectives of biological education with contemporary and future biological and educational values.
- Continuity within the framework of the continuous education system.

Biology education methodology also underscores that one of its paramount objectives is the cultivation of a scientific worldview in students. This worldview is founded on the principles of the integrity and interconnectedness of nature, its systemic and hierarchical organization, its diversity, and the inherent unity between humanity and the natural world. Additionally, school biology places a significant emphasis on fostering knowledge concerning the structure and functioning of biological systems and the concept of sustainable development within the context of the intricate interplay between nature and society.

The methodology for teaching biology as a science encompasses various key objectives, including:

- Defining the role of the biology subject within the comprehensive educational and developmental framework for schoolchildren.
- Crafting recommendations for the creation and enhancement of school programs and textbooks, and assessing the practical implementation of these recommendations in educational settings.
- Establishing the content of the academic subject, its age-appropriate sequence of instruction, and alignment with various class programs.
- Developing teaching methods, techniques, and organizational approaches tailored to the distinctive aspects of biological sciences.
- Developing and empirically testing educational process equipment, which includes organizing the classroom, creating a natural environment corner, establishing a school educational and experimental site, incorporating wildlife specimens, utilizing educational visual aids, and preparing work materials, among others.

One of the factors affecting students' comprehension of educational materials is the content of school textbooks. Texts with complex sentence structures can pose challenges in understanding, with general biology course textbooks often being particularly inaccessible. Therefore, adjustments are needed not only in educational texts but also in the tools and methods used for their assimilation. It is essential to consider the relationship between text content and graphic design.

This situation arises due to the monotonous and stereotypical teaching methods and formats, the inadequate consideration of emotions, the teacher's limited awareness of the psychological characteristics of students at various ages, the neglect of monitoring student progress, and a prevailing tendency among students to engage in rote memorization of educational content. Efforts should be concentrated on enhancing teachers' knowledge. Every teacher should comprehend that the primary objective of education is to empower students to independently acquire knowledge and cultivate the capacity to apply it effectively in evolving real-world conditions.

A contemporary educator should possess a profound understanding of the psychological and pedagogical underpinnings of teaching methods, as well as the methodological requirements for instructing students in analytical, synthetic, comparative, generalization, and classification techniques. To effectively structure educational experiences that foster the development of logical thinking skills, several prerequisites must be met:

The successful organization of activities necessitates:

- A teacher's clear comprehension of the students' capacity for independent work.
- The availability of an instructional guide outlining the sequence of steps for students to follow during tasks.
- The definition of a list of knowledge and skills that students should acquire after studying a specific topic.

When organizing work in groups, the following characteristics are highlighted:

1) A shared awareness of the common goal of the activity, necessitating collaborative efforts from each group member.
2) The establishment of relationships based on mutual responsibility and interdependence while carrying out tasks.
3) Monitoring, correction, and evaluation of the results of activities by the students themselves, guided by the teacher.
4) The primary process of cognition, assimilation of educational material, as well as its control and adjustment, occurs during group work. However, the assessment of knowledge, skills, and abilities remains individual for each student.

The success in addressing the challenges of school biology education in the country is significantly influenced by the methodology of biology teaching. In the foreseeable future, methodology teachers will need to address a range of issues aimed at advancing school biological education.

BIBLIOGRAPHY:

1. Б.Б.Абдраимова Использование инновационных технологий при проведении лабораторных занятий по ботанике. //Наука 21 века: вопросы, гипотезы, ответы /Москва, Таганрог/ 2015 йил № 1
2. Б.Б.Абдраимова Estimated attitude of students to cultural and leisure activities at the university. //Internationrnal journal of psychosocial rehabilitation (International Journal of Phychosocial Rehabilitation, Vol.24,Issue 03,2020) 268-2816 ISSN: 1475-7192
3. Б.Б.Абдраимова Проблема подготовки педагогических кадров к инновационной деятельности. //East European Scientific Journal Wschodnioerzopejskie Czasopismo Naukowe Vol.1/ 12 (64), 2020 part 6
4. Б.Б.Абдраимова Естественные направления диагностической деятельности учителя. //Вестник – науки Международный научный журнал. Тольятти 2021 Том 3// стр 5-12