MODERN BIOLOGICAL EDUCATION THROUGH INDIVIDUAL APPROACH BASED ON THE “I HEARD – I SAW – I DID” PRINCIPLE

Mahmudaliyeva Hojarxon Hikmatilla qizi
Faculty of Natural Sciences, CHDPU
3rd-year student, Department of Biology
hojarxonmahmudaliyeva.@gmail.com

Abstract: *This article explores the effectiveness of applying an individual approach to learners in modern biological education based on the "I Heard – I Saw – I Did" principle. It analyzes the methodological actions of the teacher at each stage, the creation of conditions for independent student work, and the development of biological thinking through visual and practical approaches. This method enhances students’ interest in biology, deepens their knowledge, and expands the possibilities for organizing laboratory and observational activities effectively.*

Keywords: *biological education, individual approach, active method, I heard–I saw–I did, practical knowledge, interactivity.*

INTRODUCTION

Today’s system of biological education aims to develop student personalities, fostering independent thinkers, research-oriented individuals, and specialists who can apply knowledge in practice. In this context, traditional teaching methods are being replaced by learner-centered and result-oriented pedagogical strategies. One of the most effective methods is the "I Heard – I Saw – I Did" model of active learning. This model is especially efficient in biology, as it involves not only listening but also observing and practicing, enabling deeper knowledge acquisition.

METHODOLOGY

Descriptive andSanalytical methods were employed in the research. The article is based on pedagogical-psychological literature, methods of teaching biology, modern educational technologies, existing practices, classroom observations, and the experience of advanced teachers. Using practical examples, each stage of the learning process (heard, saw, did) is illustrated. Additionally, individual approach elements were analyzed considering students’ levels of understanding, interests, and learning pace.

The methodology relied on multimodal resources such as visual aids, laboratory equipment, video lessons, interactive tests, and microscopic observations in teaching biology. To effectively implement the individual approach, students were divided into two groups, each provided with tailored learning strategies. These practices demonstrated that mechanisms like “understanding through seeing” and “remembering through doing” were highly effective.

MAIN PART

To achieve high effectiveness in biological education, it is essential to organize the teaching process in stages. In the “Heard” stage, the teacher introduces the topic, explains core concepts, and clarifies key biological terms. During this phase, visual slides and presentations help focus students’ attention.

The “Saw” stage reinforces learned information through visual and real-world examples. In biology, this involves microscopic observations, the use of laboratory tools, showing plant and animal specimens, and watching experimental videos—playing a key role in strengthening knowledge.

The “Did” stage is the most active and effective phase. Here, students independently perform biological processes, conduct experiments, sketch plant or animal structures, create models, or carry out laboratory tasks based on protocols. At this stage, students not only absorb knowledge but also apply it in new contexts.

By using an individual approach, each learner receives tasks that suit their level and learning style. For example, advanced students are given analytical questions, independent research tasks, and graphical assignments. Meanwhile, students with lower comprehension levels are offered hands-on practical tasks with more guidance and supervision.

DISCUSSION AND RESULTS

Based on the analyzed information, several important conclusions can be drawn. First and foremost, the "I Heard – I Saw – I Did" model is a convenient pedagogical approach that not only delivers knowledge but also promotes conscious comprehension and application in biological education. Through this principle, the student transforms from a passive listener into an active participant and creative performer in the lesson process.By implementing an individual approach, instructional materials and assignments are selected according to each learner’s level of understanding. This increases students' self-confidence and ensures that even less active learners are involved in the lesson. Consequently, the overall effectiveness of the teaching process increases.

Practical observations show that in classes where this approach is applied, students demonstrate better understanding, retention, and application of knowledge compared to traditional methods. Learners develop independent thinking, observational skills, the ability to draw conclusions, and self-assessment capabilities — all of which align well with the experimental nature of the biology subject.Moreover, this model requires the teacher to be thoroughly prepared, utilize a wide range of visual aids, and provide sufficient didactic materials. However, the result is a student who gains deeper knowledge and enhanced biological reasoning skills.

CONCLUSION

The individual approach based on the "I Heard – I Saw – I Did" principle strengthens student engagement in biology lessons, provides them with in-depth knowledge and practical skills, and encourages independent thinking, observation, and exploration. Through this model, students not only retain information but also comprehend, apply, and strive to independently derive meaningful results. This contributes significantly to the development and enhancement of biological thinking.

REFERENCES:

1. Avloni, A. (2020). Pedagogical Technologies and Innovations in Education. Tashkent: TDPU Publishing.

2. Soliyev, A., & Islomova, M. (2022). Interactive Methods in Biological Education. Modern Science Journal, 4(2).

3. The Education Concept of the Republic of Uzbekistan. (2019). Based on the Resolution of the Cabinet of Ministers.

4. Ausubel, D.P. (1968). Educational Psychology: A Cognitive View. New York: Holt, Rinehart and Winston.

5. Novikova, T.A. (2015). Active Learning Methods in Science Education. Education and Science Journal, 1(124).

6. Vygotsky, L.S. (1978). Mind in Society: The Development of Higher Psychological Processes. Harvard University Press.

7. Felder, R.M., & Silverman, L.K. (1988). Learning and Teaching Styles in Engineering Education. Engineering Education, 78(7), 674–6