



## DEVELOPING SYSTEMS THINKING IN FUTURE BIOLOGY TEACHERS

**Mustafaqulova Dildora Ismatullayevna**  
Teacher Of The Department Of Biology And Teaching Methods Of The  
Faculty Of Natural Sciences

### ABSTRACT

The article deals with the problem of the formation of bioethical thinking of future biology teachers at the university. Some forms and analysis of work with students in educational and extracurricular activities are presented.

**KEYWORDS:** Bioethical imperative, method, lesson, bioethical thinking.

### INTRODUCTION

The world of the 21st century is characterized by the intensity and complexity of transformations in all spheres of human activity. In this regard, a modern specialist should be distinguished by competence in the chosen field, professionalism, creative approach to his work and humanism - professional and personal qualities that allow him to respond adequately and in a timely manner to the challenges of the time. Such a semantic setting is reflected in the training of personnel of various profiles, in demand by the state and society. Among them, a special place is occupied by future teachers.

### MATERIALS AND METHODS

Today, the younger generation has not formed, blurred concepts of good and evil, morality and morality, spirituality and spiritual sensitivity. People are indifferent and indifferent to the problems and troubles of others, therefore, according to Dario Salas Sommer, a philosopher, writer and researcher, a major humanist of our time, "we intuitively experience anxiety, not knowing and not understanding how to live correctly in harmony with the environment. the world and Nature... in fact, morality is a code of laws of Nature that allows one to achieve perfection and harmony with oneself... Man is not an isolated creature, he influences Nature, everything that surrounds him, and this causes a well-deserved response reaction. That is why everyone is responsible for their actions" [1].

### RESULTS AND DISCUSSION

In our opinion, in the professional training of future biology teachers at a university, it is necessary to pay serious attention to the development of their moral qualities, non-standard thinking and the development of a stable bioethical position in the relationship "man - nature" and "man - man". A serious educational potential for the development of bioethical thinking of biology students can be the method of solving cases or situational problems. Today it is a modern, frequently used teaching technique, when a certain, specific working situation is modeled, causing discussion, requiring analysis and specific proposals for an effective solution to the problem. As a rule, cases are based on real factual material or are close to the emerging situation. It should be noted that the use of this method in the educational process of training

future teachers of biology is of great importance, since it contributes to the development of independent thinking among students, links theory with practice, allowing you to apply theoretical knowledge to a practical situation, and provides opportunities to offer non-standard, sometimes an unexpected solution to a problem. Here is an example of such a case: "In laboratory classes in zoology, when studying the topics "Internal structure of fish, amphibians, reptiles, birds, mammals", as well as in physiology classes, dissection of an animal and experimentation with him. However, the international organization Inter NICH - for humane education, which focuses on the use of animals and alternatives in the biological sciences, medical and veterinary education and opposes the mindless use of living objects, believes that "these methods are the cause of widespread suffering and deaths of a myriad of frogs, fish, rats and other animals every year. They teach disrespect for life because animals are treated as disposable tools, thrown away after use. In some countries, such methods also harm the environment from which these animals are taken" [2]. When solving a case, we offer questions for discussion: what position is close to you - to kill an animal or, guided by the principles of humane education, use an alternative; could you fundamentally change the chosen specialization, because the designated disciplines are conducted without taking into account the modern bioethical requirements of humane education, or will you reconcile yourself and will not perceive such important values as personal responsibility and respect for any form of life? In the course of work on this case (and many similar ones), there is a pronounced personal attitude of students to the problem, disputes, debates, a high emotional degree, the development of bioethical thinking and the development of moral professional and universal principles.

We believe that in this way students develop the skill of working with information, revealing their creative potential, showing their feelings, emotions and personal attitude to the problem under study.

As homework, students choose topics for writing an essay. For example: "As long as a person feels pain, he is alive, while he feels someone else's pain, he is a person" (Francois Guizot), "Science has invented cures for most of our diseases, but has not found a cure for the most terrible of them - indifference" (Helen Keller) [3].

"If everyone does good within their capabilities, the possibilities of good will become limitless" (Fazil Iskander), "Good is not a science, it is an action" (Romain Rolland), etc. We believe that this form of work encourages students to think independently, critically analysis and, possibly, changing their worldview in favor of a biocentric position.

### **CONCLUSION**

Today it is extremely important to form in future teachers of biology, and in general among all young people, regardless of the chosen profession, a certain bioethical imperative - the requirement to treat not only a person, but also the whole surrounding nature ethically, humanely, thoughtfully and responsibly. Cultivate and nurture these qualities not only in yourself, but also in your students.

### **REFERENCES**

1. Sommer D. Moral of the XXI century: Per. from Spanish M.: Publishing house "Kodeks", 2013. 480 p.
2. Humane education and alternatives. <http://www.interniche.org> - date of access: 02/24/18



3. Сизова, Е.В. Метапредметный потенциал иноязычной подготовки в системе высшего лингвистического образования / Е.В. Сизова, А.Г. Бермус // Научный диалог. – 2017. – №12. – С. 448-461. – авт. вклад 0,3 п.л.
4. Рахматов, З. Н., & Рашидов, Д. Н. (2023). Пути совершенствования механизма разработки маркетинговой стратегии ао «ўзтемирийўлйўловчи». Innovative achievements in science 2022, 2(17), 55-60.
5. Доля, Е.В. (Сизова, Е.В.) Основные особенности ФГОС 3+ и его отличие от образовательного стандарта третьего поколения / Е.В. Доля (Е.В. Сизова) // Развитие науки в 21 веке : материалы международной научно-практической конференции. Май 2015. – Харьков: НИЦ Знание, 2015. – С. 70-75. – авт. вклад 0,3 п.л.

