

Section 4. Pedagogy

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CONSIDERATION OF FEATURES IN THE CONTENT OF VARIOUS GAMES IN THE ORGANIZATION OF EXTRACURRICULAR ACTIVITIES IN BIOLOGY

Abstract. This article discusses the importance of extracurricular work in the formation of competencies and worldview of students in grades 6–7. The features of the organization of extracurricular activities in general biology, botany, zoology, Anatomy and human physiology are described. The content of extracurricular activities in raising a child is closely related to the directions of Education. From this point of view, in the direction of moral education of students, attention is paid to the study of the life and activities of historical figures, the use of approaches that help to master the laws of political and economic development of society in the formation of a scientific view of the world is summarized. During the study, methods of testing and observing plants and animals in nature, planting trees and shrubs, creating birdhouses, visual aids, reports, abstracts, circles of young biologists, biological conferences, Olympiads, observation Diaries, exhibitions of students' works, biological excursions were used. In order to determine the effectiveness of the work carried out, a survey of students of the experimental class was conducted. In the course of the survey, it was shown that extracurricular reading classes influenced the content of the material and the study of various biological literature, obtaining additional information about plants and animals, and increasing interest in the subject. The work on the systematic analysis of domestic and world achievements in the field of teaching biology in pedagogical practice has been carried out, as a result, the best innovations of world education and methods of teaching biology in secondary educational institutions will be revealed. As a result of research, this technique can be used by biology teachers as an auxiliary tool in organizing extracurricular activities.

Keywords: teaching biology, competencies, extracurricular activities, methods, systematic analysis.

1. Introduction

The idea of the researches is to develop a multi-literate model of Kazakhstanese teachers and a strategic transformation of educational modules for the integration of methodological literacy and

digital smart technologies into the training of teachers of natural sciences in the form of recommendations in the standards of education and the educational – methodological complex “Biology” (grade 6–7) through a priority approach to the formation of

value orientations of students and the development of language knowledge based on national and universal values. The developed EMC will be a guide for future biology teachers in the pedagogical process, being the basis of educational and cognitive, communicative, social, research skills and means of verifying learning outcomes. The scientific effect will be reflected in the creation of an effective educational model, contributing to the in-depth development of STEM knowledge and forming increased functional literacy of future biology teachers.

It is known that as part of the integration of Kazakhstan into the world educational space, since 2015, the introduction of curricula and programs of updated educational content according to the State Educational Standard of the Republic of Kazakhstan-2015 has begun. Thus, in connection with the transition to the updated content of education, biologists are tasked with revising teaching methods, the structure and content of educational programs of higher educational institutions, as well as developing an adequate and scientifically sound model for evaluating future biologists' educational achievements of students.

Modernization of modern education presupposes a competence-based approach as one of the important conceptual provisions of the updated content of education [1]. The need for highly qualified subject teachers for secondary schools is considered very urgent for our state.

At the moment, an integral part of the professional skills and pedagogical competence of biology teachers is their ability to contribute to the formation of a common culture of students' personality and the development of professional educational programs, methodically armed with innovative teaching methods for the Biology course [2].

Currently, there is no single, universally recognized and universal classification of teaching and learning methods. This is due to the fact that different researchers, methodologists, teachers used different approaches and principles when developing

the classification of methods [3; 4]. Thus, one based the classification of methods on the structure and functions of methods, others – various forms of independent cognition, the third classify according to didactic tasks, the fourth – according to the degree of independence, the fifth – according to the sources of information and the nature of the activities of teachers and students, the sixth – according to the nature of the logical approach [5–10].

The analysis and generalization of the materials of the existing UMK, scientific and methodological innovations and the results of their own research allow us to believe that the existing textbooks and UMK on teaching methods of teaching biology in the Republic of Kazakhstan do not fully meet the modern requirements of the International Standard of Quality of Education, as well as the updated curriculum of the Republic of Kazakhstan. It should be noted that the established traditional practice of assessment at school does not meet the requirements of the new standard of education, curricula, as well as learning goals that require an adequate and scientifically based model for evaluating students' academic achievements [9].

The noted shortcomings allow us to conclude that the creation of a multi-literate model of a biology teacher with the requirements for compliance and the development of educational and methodological complexes of an innovative nature for teaching future biology teachers with audio, video, illustrative, spoken and written exercises in the form of printed and electronic format will lead to the creation of conditions for in-depth teaching of biology teaching methods in higher schools education.

2. Methodology

The works of leading scientists, manuscripts, materials of state, foreign and personal archives, fundamental methods of teaching Biology in the context of modernization of education, complex methods of pedagogy and psychology are analyzed.

The development of students' creativity in biology lessons was carried out in practice classes,

practice practices, solving problems, compiling Tabular explanations of plants and animals, performing exercises, performing control and verification work, working with textbooks, reference books and various additional literature, writing and writing reports of practice work, processing cognitive materials. For the lesson, V.M. Monakhov's design technology, critical thinking, level learning technology, problem-based learning technology, modular learning technology, and cross-reference technology were studied through the continuity of methods [10].

The importance of updated education is critical thinking, research, experimentation and the use of ICT, and the creation of a harmonious and comfortable educational environment for the student's personality [11].

The student receives the necessary materials from the internet, teaches the ability to correctly use definitions, biological processes, and dictionaries. For example, you can get a lot of information from just one chemical formula itself. The formula that distinguishes the physiological and anatomical features of any organism is considered the most important part of the organization of extracurricular activities in biological education. One of the prerequisites for organizing a biology lesson outside the classroom is that it is characterized by the ability to creatively select additional materials in accordance with the topic, use didactic, technical means, electronic textbooks as intended, affecting the student's feelings.

An entrance control experiment was conducted in secondary educational institutions: interviews with 50 teachers and 200 schoolchildren will be conducted, the best practices of teachers, school curricula and textbooks will be analyzed in order to identify general trends in improving the quality of teaching biology courses by future biology teachers. The basis of the study was 4 secondary schools of the city of Turkestan, based on the existing memorandum of cooperation. At least 200 students of grades 6–7 will participate in the pedagogical experiment.

3. Research Results

The educational and educational tasks of the school biology course are fully solved on the basis of the close relationship between extracurricular work and the classroom system. The knowledge and skills in biology acquired by students in classes, laboratory classes, excursions and other types of educational work are significantly deepened, expanded and informed in extracurricular activities, which has a great impact on the overall growth of their interest in the subject.

The analysis of biology textbooks shows that they do not fully meet modern needs. Many textbooks are characterized by a poor connection of the material under study with practice, an overload of secondary facts and details, not setting a clear goal for managing students' independent work, which ultimately interferes with the development of students' cognitive interests. Therefore, the formation of students' scientific knowledge in biology lessons is impossible without further extension of work in extracurricular activities. The issues of not only high-quality teaching of academic disciplines, but also the activation of extracurricular activities are relevant today.

Extracurricular work is an integral part of the educational process at school, one of the forms of organizing students' leisure time. It is not mandatory for all learners and includes those interested in biology. The content of extracurricular work in biology is not limited to the size of the school curriculum, goes beyond it, is determined by the interests of students and is supervised by a biology teacher.

The correct organization and training of extracurricular activities in biology is of great educational importance. This allows you to broaden the horizons of students, consolidate and deepen the knowledge gained in the lesson, and the ability to control and experiment forms research inclinations, reveals the talents of students and helps to choose a future profession. From the point of view of the Russian scientist A. I. Nikishov, extracurricular work in biology makes it possible to closely connect theory with practice. It

introduces schoolchildren to various possible activities: preparing the soil for experiments and observing plants, caring for them, planting trees and shrubs, caring for farm animals, which, in turn, instills in them a sense of responsibility for the task assigned to them, the ability to bring what they started to the end, contributes to the development of a sense of collectivism [12–15].

In their research, domestic authors considered the differences between extracurricular activities from everyday classes. It is planned to contribute to the formation of students' activity, interaction, and further improvement of the acquired knowledge. He also wrote about the problem of increasing students' interest in biology, the organization of extracurricular activities [16; 17]. In order to form the worldview of students through the organization of extracurricular activities, it is necessary to show him both the good and the shadow side of life. Worldview consciousness affects the feelings, will of the child, fixing consciousness, stimulating the will [18].

There will be no state plan for extracurricular activities, and there will be no grades. Students participate voluntarily. Extracurricular and extracurricular activities are of great benefit for the development, formation of students' creative qualities, increasing students' motivation for independent work and collective work. Therefore, the work carried out through the teacher's ability to stimulate students' enthusiasm in organizing school and extracurricular work will not only be successful, but as a result, students will firmly master and use knowledge in practice [14].

The school biology textbook provides methodological guidelines for the organization and content of biological excursions, school Zoological conventions, a living corner, brief determinants for some groups of animals are given, the topics of research work of schoolchildren are given.

The organization and content of extracurricular activities in biology should always take into account the age characteristics of students. On their basis,

students should have their own activities of a research nature, which are controlled by the teacher – teacher: independent experiments and observations, work with reference books, determinants, journals, popular science literature.

Extracurricular activities should arouse the interest of students and interest them with various activities. The content of extracurricular activities in biology should include the study of the surrounding wildlife, its protection and environmental education of students.

Extracurricular activities in botany are usually conducted by students of grades V – VI. It includes knowledge and experience in the study of the structure and physiology of plants, seasonal phenomena in the life of plants, the study of the diversity of the plant world, indoor floriculture, etc.

Extracurricular activities in Zoology, as a rule, include the study of the species composition of the animal world of the local region, the identification of animals belonging to agriculture and Forestry and measures to combat them, acquaintance with Red animals and ways of their protection. Of great interest is the creation of a zoological corner of wildlife, the care and observation of their inhabitants. Students are especially interested in the work on the protection of birds, as well as the protection of ants.

Extracurricular activities in anatomy, physiology and human hygiene are carried out with students mainly in the VIII grade. It includes: practices and self – control that explain the essence of exercises for the development of organs; practices that determine the influence of various factors of the external environment on the activities of organs; promotion of a healthy lifestyle for students and the population; explanation of the emergence and spread of various superstitions.

Extracurricular work on biology in general is based on the study of heredity and variability, the struggle for life in plants and animals, the relationship of organisms in real habitat, etc.

In the process of organizing extracurricular activities in biology, the teacher – teacher should take into account, first of all, that its content should be accessible to each age group of students. The main forms and types of extracurricular work carried out by a teacher – pedagogue should reflect the relationship of theory with practice and the implementation of the principle of research.

Based on the methods used in the course of scientific research, the following experiments were carried out for inclusion in the educational process.

The subject of the study was 30 students from among the 4th year students of the specialty scientific biology.

Group I (A) was selected as an experimental group and consisted of 15 students.

Group II (B) was a group that mastered only theoretical data and consisted of 15 students.

A survey was conducted to determine the level of knowledge of students on the topic. The survey was made up of opinions on the reproduction of the genus of plants in the laboratory in vitro and its cost-effectiveness. Students selected for research work showed the following results from the questionnaire (note 1).

In order to form the theoretical knowledge of the selected groups, lecture classes were organized. In addition to lectures, the first group took part in practical classes and got acquainted with the methods of reproduction of various plants in vitro in the biotechnological Laboratory of the International Kazakh-Turkish university named after Khoja Ahmed Yasawi. During the research work in the biotechnological laboratory, the following worldviews were formed about the future of Clone micro-reproduction:

1. Reproduction of plants in vitro laboratory, more effective than traditional methods.
2. The Microclonal method of reproduction is one of the ways to preserve the gene pool of rare and listed plants in the Red Book.
3. Pathogenic by viruses. Obtaining seedlings of pure fruit-bearing, nutritious and beautiful crops from plants and their rapid reproduction.

Group II was limited to attending lecture classes and writing essays and reports on the topic was given as a task. At the end of the research work, Control work was obtained from both groups. The results shown by the students were evaluated by a 100% system. During the control work, the two groups achieved the following results.

In order to determine the impact of the conducted research on students-biologists and the established level of knowledge, a questionnaire was taken that showed the results of the study (note 2).

If we look at the results of the survey, we can see that the level of knowledge of Group A students, depending on the topic, increased from 20% to 98%. We can see that the result of Group B students increased from 10% to 35%.

Individual methods were developed for laboratory classes conducted in January and March. The methodology allows students to supplement the theoretical knowledge gained in classroom lectures on the basis of practice.

4. Conclusion

Depending on the direction of research, the theory of innovative methodology of biological education was determined, analyzing the psychological, pedagogical, biological, scientific and methodological literature. The ecological and physiological aspects of reproduction and adaptation of various plants obtained by microclonal means were studied. The study of the main stages of cultivation of explant in various nutrient media and phytohormones formed the search and research activities of students.

It is proved that the methodology of laboratory training, developed in accordance with the topic of the research work, is the optimal method for training a biologist. Based on the results of the study, it was found that effective ways of teaching the technology of reproduction of introduced plants in the Botanical Garden can be used as a methodology for organizing laboratory work by teachers of Biological Sciences.

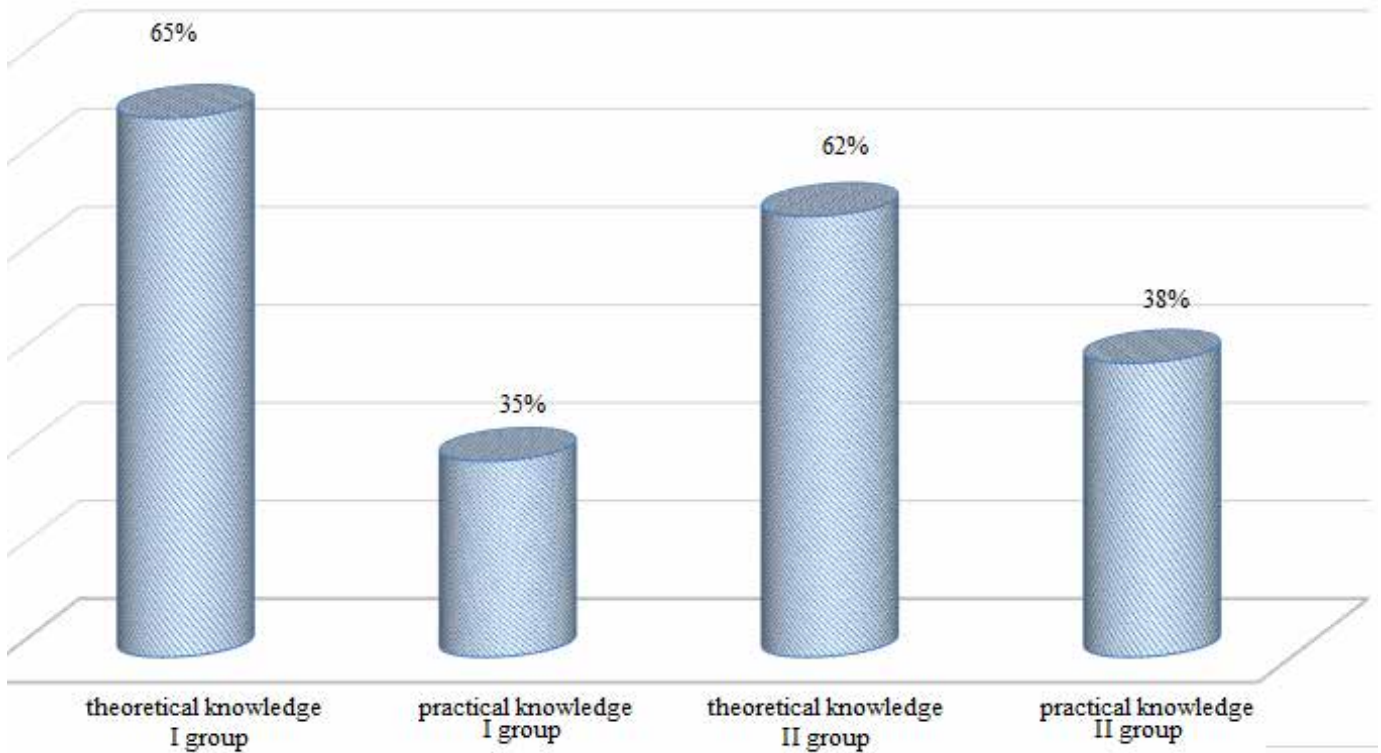


Figure 1. The results of the knowledge of the research and control groups on teaching methods

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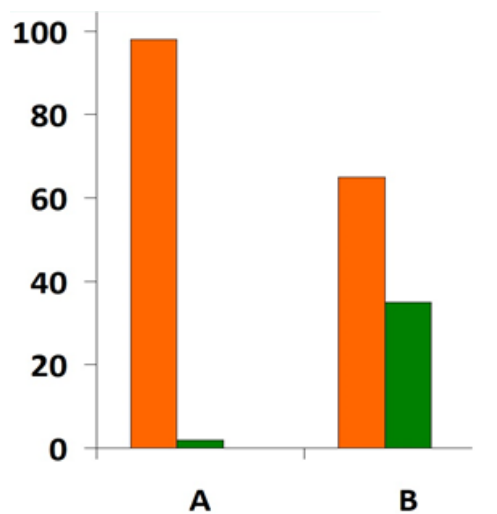


Figure 2. The result of a survey related to the technology of plant reproduction, blue – students who have mastered knowledge, red – students who have not mastered knowledge

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