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Students' attitudes towards the interactive methods used for the purpose of health education

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Abstract: *The study is part of a didactic experiment, aimed at testing the effectiveness of using interactive methods in teaching Biology and Health Education to school students. The interactive methods have been selected in correspondence with the learning objectives of specified methodological units from the sections "Kingdom of Fungi" and "Kingdom of Animals" tested in the conditions of real lessons with students from the 7th Grade of Yoan Exarch Bulgarski Secondary School in Shumen. As a result of the application of interactive teaching methods, students have a conscious and motivated perception of the subject matter, they understand and evaluate their responsibility for human health – their own and that of others, and the acquired theoretical knowledge forms their behavior and readiness for action in solving critical health-related situations in life.*

Keywords: interactive methods, health education, biology and health education

Introduction

Education is a process of interaction between the actions of teachers and students. An interaction through which not only information on facts and patterns is transferred, but also targeted and organized information, which can be transformed into practical knowledge.

Essence and purpose of health education

In contemporary pedagogical literature and practice, the concept of "upbringing" is used in a broad and narrow sense of the word. In a broad sense, education includes all types of influences, the entire process of forming the personality and preparing it for active participation in production, public and cultural life... In a broad sense, it includes education and training. In a narrow sense, upbringing means the formation of a worldview, moral image, development of aesthetic taste, physical development of the personality... In this

understanding, upbringing does not include education and training [1].

In pedagogy, the concept of upbringing can be found in several more meanings:

- in a broad pedagogical sense, meaning purposeful upbringing carried out in the system of educational institutions (or in a separate educational institution), covering the entire educational process;
- in a narrow pedagogical sense, when upbringing is understood as special educational work aimed at forming a system of certain qualities, views and beliefs in students [2].

Upbringing is one of the global concepts of pedagogy, related to the formation of views, beliefs, needs, abilities, behavior [2]. In this sense, there are convincing reasons to accept the creation of attitude as a broader concept than education.

Creation of attitude for a healthy lifestyle at school in a broad sense should cover various aspects: physical, sexual, environmental and social education. In this understanding, it should be present in all curricula and be an important responsibility of all teachers. In a narrow sense, it covers the following areas: nutrition, body hygiene, clothing, housing, general disease prevention, medical checks, school hygiene, psychohygiene, defectology, safety knowledge, etc.

Education is most often associated with the acquisition of knowledge, skills, habits, as well as preparation for a certain professional duties, while the creation of attitude is connected to the formation of views, beliefs, values, attitudes, needs, abilities, and behavior. Thus, it can be concluded that in the tripartite pedagogical process the creation of attitude is the most important.

Health education is an immanent part of the overall educational process and encompasses all stages, levels, directions and forms (both curricular and extracurricular) of school (Grades 1-12) and higher education and is an integral result of training in unity with creation of attitude for a healthy lifestyle in one (special, e.g. Valeology) or many subjects, which are concerned with different aspects of health issues.

Health education cannot be limited within the framework of one subject, nor within the framework of school education. It should be viewed as a national (and global) strategy, based on a clear and responsible understanding of the global significance of the problem.

A number of authors as Trendafilov [3], Topuzov [4], Prodanov [5], Panayotova [6], Kostova [7], work on the issues of health education from a theoretical perspective, defining its goals and objectives.

According to Panayotova [6], the goals of health education are:

- to build a value-oriented subjective health culture in students;
- to form an awareness of their personal and social responsibility for health;
- to develop in them a need for a healthy lifestyle and to affirm appropriate health behavior.

Interactive methods and characteristics of the traditional and interactive model of learning

Interactive learning is an innovation of the 21st century classroom [8]. As such, it is implemented in

conditions of a decentralized structure of communication with the use of interactive learning methods [8].

As indicated by Todorina [9] interactive learning can be organized and manifested in different ways:

- As a team organization of learning activities;
- As one of the sides of communication between partners in the learning process;
- Through the application of information technologies;
- Within the framework of educational technologies, etc.;
- It is based on the interaction, cooperation and initiative of participants in the learning process.

Table 1 presents the features of the traditional and interactive learning models.

Table 1. Features of traditional and interactive models of education (according to Ivanov [10] with modifications)

TRADITIONAL MODEL OF EDUCATION	INTERACTIVE MODEL OF EDUCATION
Assimilation of ready-made educational information necessary for the successful completion of assigned tasks and activities, for the successful passing of an exam.	The perceived need to assimilate and transform in one's own way educational information necessary for the successful completion of assigned tasks and activities and for successful passing of an exam.
Problem identification and problem solving in a structured and static learning environment.	Finding and solving problems in an unfamiliar and dynamic learning environment.
Assimilation of information from information sources. Application of acquired knowledge and formed skills to specific cases and situations.	Adaptation to information sources. Transformation and conversion of information into an applicable resource.
Pedagogical communication based on the functioning of the direct connection and consists of interaction between teacher and student.	Pedagogical communication expressed in the presence of one-to-one relationships between all participants. It is based on the interconnection and interaction student - student, teacher - student; permanent feedback; teamwork.
The teacher independently shapes the learning outcomes and provides feedback in the learning process.	The teacher and students jointly discuss and shape learning outcomes, and provide feedback in the learning process.

When comparing the traditional and interactive educational models, the following characteristics stand out, which unequivocally show the advantage of the interactive educational model of learning:

- In the traditional educational model the information is learned; learning problems are determined and

solved in a structured and static environment; learned knowledge and skills are applied to specific cases and situations; learning is based on the teacher-student interaction; the teacher makes individual assessments and assessments and provides feedback.

- In the interactive educational model the need to learn the information is realized is internally justified, the learning problems are determined and solved in an unfamiliar and dynamic environment; students adapt to information resources; information is transformed into an applicable resource; learning is based on the student-student interaction and teamwork; the teacher and the student jointly make individual assessments and and provide feedback.

The Teacher's Guide for Biology and Health Education for Grade 7 briefly presents the concept and technology of the interactive educational model and interactive learning, and along with presenting the stages of application of interactive methods and highlighting the positive aspects of interactive communication between subjects in the learning process, it also emphasizes its role in the successful achievement of educational and developmental goals and tasks. It states that interactive learning has its specific and achievable goals. Interaction in biology and health education classes in Grade 7 implies the organization and development of dialogic communication, which ensures mutual understanding and interaction, leads to joint solving of common, important and significant tasks for each participant [11]. A large number of teachers successfully apply in their teaching various interactive methods, tailored to the specific learning content, such as case solving, aquarium, decision tree, brainstorming, debates, didactic game, 'take a position', among others [11-17].

Health aspects of the curriculum in Biology and Health Education, Grade 7, and the application of interactive teaching methods

The implementation of the goals and objectives of health education to students is carried out by including knowledge about the place and role of unicellular and multicellular organisms in nature and their importance for humans. One of the essential focuses of the curriculum is human diseases caused by unicellular parasites and invertebrate parasites, their prevention, and the role of humans in preserving biodiversity. This issue is implicitly included in a number of methodological units of the mandatory curriculum and, above all, in specially developed ones in the sections Kingdom Monera, Kingdom Protista, Kingdom Plants, Kingdom Fungi, and Kingdom Animals. A strongly pronounced health and ecological emphasis on the curriculum is also given by the last section of the curriculum, namely Sustainable Development and Healthy Lifestyle.

The subject matter is also aimed at the formation of practical knowledge and skills for a healthy lifestyle and environmentally friendly behavior. The unity of specific knowledge and practical skills provides an opportunity for the application of the acquired knowledge related to human health in various life situations, enrichment of the personality and the formation of an attitude towards the place, role and responsibilities of each person towards themselves, the society and the natural environment.

The subject matter in Biology and Health Education in Grade 7, with the planned observations of objects in nature and in the laboratory, experimental settings at home, planned project activities, discussions, debates, etc., contributes to the formation of practical skills and habits for preserving human health. In the course of self-observation, observation and experimental activities, students acquire intellectual skills in assessing the need for personal and public hygiene, protecting the purity of water, air and soil, preserving biodiversity, and developing practical skills in applying hygiene rules and norms for a healthy lifestyle.

Expected results in terms of what students can do when working on different topics from the curriculum in Grade 7. A student should be able to:

- Name, identify, and recognize characteristic features, and describe characteristic representatives from the Kingdom Monera, Kingdom Protista, Kingdom Plants, Kingdom Fungi, and Kingdom Animals, which have a harmful effect on human health and life.

- Describe the importance of representatives of pre-nuclear unicellular (Monera), true unicellular (Protista), representatives of the three kingdoms Plants, Fungi and Animals for human activity and human health.

- Name and identify types of thallus and corm plants and illustrate with examples their importance and impact on human health and life.

- Name, recognize, identify characteristic features and describe characteristic representatives of edible and poisonous mushrooms, which have a harmful effect on human health and life.

- Assess the dangers of the harmful and detrimental impact on the human body of poisonous mushrooms.

- Be aware of the need to comply with the rules for collecting and consuming mushrooms in nature.

- Know and comply with the basic rules for collecting and consuming mushrooms in nature.

- List, describe and give examples of common diseases caused by parasitic representatives of the 5 kingdoms of organisms in nature according to the following algorithm: type of disease - causative agent - signs - ways of infection - prevention.

- Justify, be aware of and assess the need to comply with hygiene standards, rules, personal and public hygiene to protect humans from disease-causing unicellular and multicellular representatives of the 5 kingdoms of organisms in nature.

- Assess the need to preserve the purity of water, air and soil to preserve biodiversity, as a condition and prerequisite for a healthy and environmentally friendly way of human life.

Based on the brief scientific and methodological analysis of the curriculum content in Biology and Health Education in Grade 7, and the intended goals, we chose to plan and conduct the didactic experiment and the survey on some topics from the sections Kingdom of Fungi and Kingdom of Animals. The research was

carried out on topics from the curriculum content according to the version of the textbook Biology and Health Education, Grade 7, published by Prosveta – Sofia, 2024, authored by Kabasanova et al. [18].

The aim of the research is to study the attitude of students to issues of health education in Biology and Health Education, Grade 7, and the interactive methods used in teaching selected methodological units from the curriculum content in Biology and Health Education.

Material and Methods

Research methods: Theoretical analysis; observation; survey; mathematical methods for processing the results of the survey; graphical methods for presenting the results.

Participants: The didactic experiment with the use of interactive methods in a real learning environment and the survey were implemented in the Biology and Health Education classes with students in the 7th Grade at the "Yoan Exarch Bulgarian" Secondary School, the city of Shumen during the second academic term of the 2024/2025 academic year on selected methodological units from the "Kingdom of Fungi" section and the "Kingdom of Animals" section.

Results and Discussion

The survey consists of 8 questions (Appendix No. 1). The majority of the items in the questionnaire are statements with a scale. The questions are divided into four groups.

The first group of questions aims to study the opinion of students on the extent to which the subject Biology and Health Education contribute to their health education, and whether it is interesting and important for them from the point of view of the health issues studied.

The second group of questions is related to the possibilities for application of various methods in the process of teaching Biology and Health Education, and the way they increase their interest in the issues, and the awareness of everyone's responsibility for human health, and the extent to which they contribute to the comprehension of the acquired theoretical knowledge in relation to behaviors and actions in acting in life situations that threaten it.

The third group of questions aims to explore students' willingness and readiness to apply interactive methods in their health education, both currently and in the future.

The results of the responses to the questions in the survey, which correspond to the purpose and subject of the study, have been analyzed and graphically presented using pie charts (Figure 1).

1. To what extent, in your opinion, does the subject Biology and Health Education contribute to your health education?

The diagram shows that the subject Biology and Health Education, with the included health-related educational content, contributes, according to the students, to a large extent to their health education.

2. Are the topics in which you study health-related issues interesting to you?

The analysis of the results clearly shows that students study health-related issues with great interest.

3. How do the lessons in Biology and Health Education change when using interactive teaching methods?

The diagram shows that students who show little interest in learning generally responded negatively - a total of 13%. However, the remaining students confirm that innovative approaches are interesting to them - they remember, make sense of, and understand information presented through the application of interactive methods more easily.

4. Do the interactive teaching methods used by the teacher raise your interest in the subject and the issues related to health and a healthy lifestyle?

Students evaluate the teaching of Biology and Health Education as contributing sufficiently to their health education. 9% opted for insufficient contribution, and 5% of the respondents cannot assess the importance of the subject in this regard. Students think that the interactive methods used by the teacher create additional interest in the subject matter in "Biology and Health Education" and this led to the formation of a health culture, behavior for a healthy lifestyle, and prevention and protection from infectious diseases.

5. Do you actively participate in the discussion of health-related issues, in cases where the teacher uses interactive teaching methods (case studies, discussions, associations, mind maps)?

The small number of people who answered negatively is indicative of the fact that human health issues are relevant and significant for almost all students, and this interest is additionally supported by the use of interactive learning methods in teaching.

6. Did the interactive teaching methods used by the teacher help you to understand your responsibility for your health and that of others, to make sense of the theoretical knowledge you have acquired, and to actively participate in solving life situations that threaten it?

Students are largely aware of their responsibility for the problems of protecting human health, help them to make sense of what they have learned, and that they can make decisions in and act appropriately in life situations that threaten it.

7. Do you like or dislike working in a group during the use of interactive teaching methods?

Of the 29 students surveyed, 75% of the students liked it, and 25% did not like it because a lot of time is wasted in preliminary preparation. These results lead to the conclusion that there are students who do not want to work on small educational projects outside of school because it bothers them. The recommendation is to reduce the time for preliminary preparation.

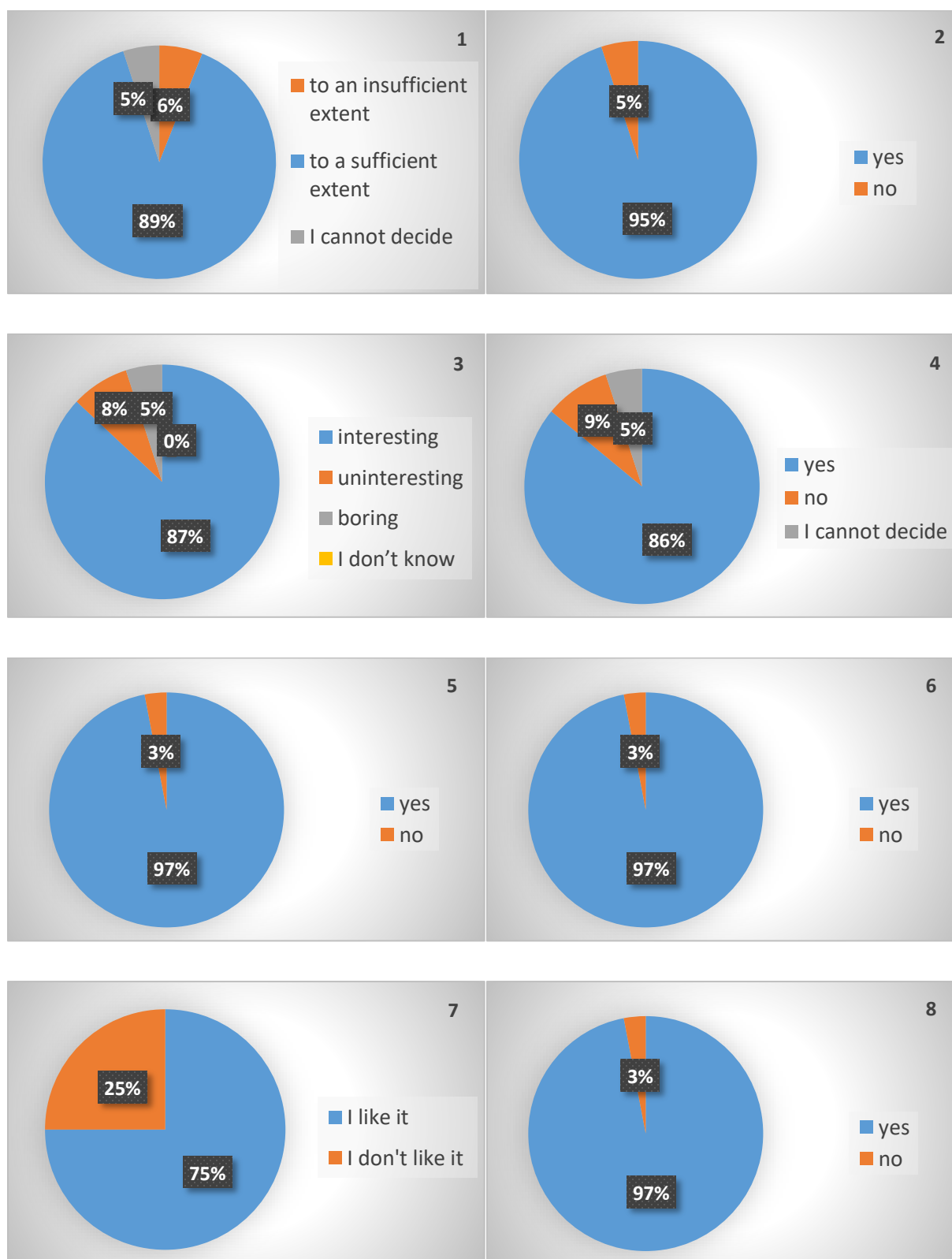


Figure 1. Students' answers to the questionnaire

8. Would you like the teacher to use interactive teaching methods in health-related lessons in the future?

The analysis of the results of the last question No. 8 shows the following: 97% of the surveyed students express a desire and interest in participating in the discussion of health-related issues if the teacher uses interactive teaching methods (case studies, role-plays, discussions, associations, mind maps, etc.). We hope that this result is an indication of students' readiness to make efforts and actively participate in the discussion of health-related problems in the following lessons and classes.

Conclusions

The analysis of the obtained results shows that students highly appreciate the importance of the subject Biology and Health Education in the aspect of health education, which also determines their great interest in the problems of health topics included in the curriculum content.

As a result of the application of interactive teaching methods, students have a conscious and motivated perception of the subject matter in Biology and Health Education, they understand and evaluate their responsibility for human health – their own and that of others, and the acquired theoretical knowledge forms their behavior and readiness for action in solving critical health-related situations in life.

The high evaluation that students give to the methods and ways of teaching health education explains their enthusiasm, desire and readiness to participate at present, and in the future, in educational and cognitive activities through the use of interactive methods.

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APPENDIX №1

QUESTIONNAIRE

Dear students,

This questionnaire aims to explore your opinion on how health education is implemented in the teaching of Biology and Health Education, and what role interactive teaching methods have in this regard. Please answer the questions correctly and accurately! The survey is anonymous!

Thank you!

Your teacher: Bilyana Boycheva

Instructions for filling out the questionnaire: Put an X on the answer you have chosen!

1. To what extent, in your opinion, does the subject Biology and Health Education contribute to your health education? (Please choose only one answer!)

- ☐ to an insufficient extent;
- ☐ to a sufficient extent;
- ☐ I cannot decide.

2. Are the topics in which you study health-related issues interesting to you? (Please choose only one answer!)

- ☐ yes;
- ☐ no.

3. How do the lessons in Biology and Health Education change when using interactive teaching methods? They become... (Please choose only one answer!)

- ☐ interesting;
- ☐ uninteresting;
- ☐ boring;
- ☐ I don't know.

4. Do the interactive teaching methods used by the teacher create interest in you in the subject and the problems related to health and a healthy lifestyle? (Please indicate only one answer – “yes”; “no” or “I cannot decide” and your reasons for it!)

- ☐ yes, because:
 - ☐ they help me understand the practical significance and application of knowledge;
 - ☐ I can express my personal opinion on what we are studying;

- ☐ I can justify and prove my answer;
- ☐ they make me think and reflect;
- ☐ I learn in a relaxed and calm environment;
- ☐ they help me to understand and consolidate the knowledge I acquire;
- ☐ they help me to relax and invigorate;
- ☐ we work in a group and can discuss and help each other
- ☐ I can show my knowledge and express myself;
- ☐ other opinions.....
 - ☐ no, because:
- ☐ they distract and unfocused my attention;
- ☐ they tire me out;
- ☐ they make me take longer to prepare.
 - ☐ I cannot decide.

5. Do you actively participate in the discussion of health-related issues in cases when the teacher uses interactive teaching methods (case studies, discussions, mind maps, etc.)? (Please choose only one answer!)

- ☐ yes;
- ☐ no.

6. Did the interactive teaching methods used by the teacher help you to understand your responsibility for your own health and that of others, to make sense of the theoretical knowledge you have acquired, and to participate in solving life situations that threaten it? (Please choose only one answer!)

- ☐ yes;
- ☐ no.

7. Do you like or dislike working in a group during the use of interactive teaching methods? (Please choose only one answer and your reasons for it!):

- ☐ I like it because:
 - ☐ I can express my personal opinion;
 - ☐ I can argue why I think this way or why I act in a certain way;
 - ☐ They motivate me to learn better;
 - ☐ I can ask questions;
 - ☐ I can communicate freely with my classmates and the teacher;
 - ☐ I more easily acquire knowledge important for people's lives.
- ☐ I don't like it because:
 - ☐ It bothers me;

- ☐ It wastes a lot of time;
- ☐ I have to think and reflect.

8. Would you like the teacher to use interactive teaching methods in health-related lessons in the future? (Please choose only one answer!)

- ☐ yes;
- ☐ no.