

## **REVIEW**

by Prof. Dr. Galya Mihailova Kozuharova  
Thrakia University, Stara Zagora

of a dissertation for awarding the educational and scientific degree "doctor"  
in the field of higher education 1. Pedagogical sciences,  
professional direction 1.3 Pedagogy of training in ....  
Doctoral program: Teaching methodology in biology

**Author: Nikola Stefanov Vakrilov**

Topic: "THE DEBATE AS A METHOD OF TEACHING BIOLOGY IN  
SECONDARY SCHOOL"

Research supervisor: Assoc. Dr. Delka Karagyozyova-Dilkova

### **1. General description of the presented materials**

This review was prepared on the basis of Rector's Order No. RD-21-1038 of 06/09/2022 of the Rector of Plovdiv University. With this order, I have been appointed as a member of the scientific jury to ensure a procedure for the defense of a dissertation work on the topic "Debate as a method of teaching biology in secondary school" for obtaining the educational and scientific degree "doctor" in the field of higher education 1. Pedagogical sciences, professional direction 1.3 Pedagogy of training in ...Doctoral program: Methodology of training in biology with the author of the dissertation Nikola Stefanov Vakrilov - doctoral student of independent training at the Department of "Botany and Biological Education" of the Faculty of Biology of the PU " P. Hilendarski" with research supervisor Assoc. Dr. Delka Karagyozyova-Dilkova

The set of paper and electronic materials presented by Nikola Vakrilov is in accordance with Article 36 (1) of the Regulations for the Development of the Academic Staff of the PU and includes the following documents:

- a request to the Rector of the PU to disclose the procedure for the defense of a dissertation work;
- curriculum vitae in European format;
- minutes from the department council related to reporting the readiness to open the procedure and preliminary discussion of the dissertation work;
- dissertation work;

- abstract in Bulgarian and English;
- a list of scientific publications on the subject of the dissertation;
- declaration of originality and authenticity of the attached documents;
- a certificate of compliance with the specific requirements of the relevant faculty.

The dissertation "Debate as a method of teaching biology in secondary school" consists of an introduction, three chapters, a conclusion and appendices. Included are 50 figures, 116 tables, 1 diagram and 3 appendices. The total volume of the dissertation is 286 pages, of which 192 pages are the main text. The bibliography consists of 130 sources, of which 108 are in Cyrillic and 22 are in Latin.

The doctoral student has attached a list containing seven publications on the topic of the dissertation research.

## **2. Brief biographical data for the doctoral student**

Nikola Stefanov Vakrilov graduated from the Faculty of Biology of the University of Plovdiv with a bachelor's degree in 2011, majoring in biology. In 2012 acquires the qualification to be a biology teacher and a teacher of man and nature. In 2013 obtained a master's degree in the specialty "Ecology and Ecosystem Protection".

Since 2012, he has been working intermittently as a teacher of biology and health education and of man and nature. He went through seven trainings to improve his qualifications as a teacher.

Nikola Vakrilov is a doctoral student of independent training at the Department of "Botany and Biological Education", Faculty of Biology of the Paisii Hilendarski Polytechnic, Plovdiv, Bulgaria.Актуалност на тематиката и целесъобразност на поставените цели и задачи

## **3. Actuality of the topic and appropriateness of the set goals and tasks**

The modern development of society and the rapid development of technology leads to a change in the interests and motivation of students. Constructivism as an innovative approach and the active methods of teaching and learning through which it is implemented are imposed in the educational process in all academic disciplines. One of these methods is the debate, which is the subject of research inquiries. This makes the presented dissertation research extremely relevant for modern pedagogical theory and practice.

#### **4. Knowing the problem**

In the dissertation study, Nikola Vakrilov analyzed a significant number of foreign and Bulgarian pedagogical and methodical scientific literature. The main concepts related to the subject of the dissertation research are analytically presented - modern aspects of education, theories of learning through the prism of the modern constructivist paradigm, interactive methods and the possibilities of increasing student motivation.

Based on the theoretical studies, a Methodical model for conducting an educational debate was summarized and structured, which fulfills the purpose of the dissertation research and is one of the contributions of the doctoral student.

#### **5. Research methodology**

Adequate research methods have been used in the dissertation research, in accordance with the established conceptual foundations. The concept contains specifically formulated goal, tasks, subject and object and hypothesis of the research. Criteria and indicators have been appropriately selected and specified, on the basis of which a toolkit for reporting the results has been developed - didactic tests, questionnaire, adequate statistical methods.

A transformative didactic experiment was conducted in two consecutive school years. The methodology of its implementation and the materials from it are presented in the second chapter and in the appendices.

The summary of the results of the experimental research are presented and analyzed in the third chapter of the dissertation.

I believe that the selected research methodology allows achieving the set goal and obtaining correct confirming conclusions related to the research tasks, the subject and the object of the research. Характеристика и оценка на дисертационния труд

#### **6. Characterization and evaluation of the dissertation work**

The dissertation work has a practical-applied character, which is a reason to look for its innovative value in the proposed developed and approved author's methodical model for conducting an educational debate in biology education.

The dissertation was developed according to the requirements for this type of research. In it, a thorough, analytical and multi-faceted analysis of a considerable volume of pedagogical and scientific-methodological literature was made. The organized and adapted

didactic experiment contains valuable experience that can be used directly by teachers and would contribute to the development of important life skills in students.

The summarized and analyzed results in the third chapter support the significance of the conducted research.

## **7. Contributions and significance of the development for science and practice**

The main contributions of the dissertation work can be summarized in scientific, scientific-applied and applied aspects:

- A methodical model for implementing debate in general biology and health education lessons was developed and tested;
- An algorithm for constructing and holding a debate in general biology lessons in the 7th, 8th and 9th grades is described;
- A diagnostic toolkit was constructed for evaluating the results of holding debates in biology and health education;
- The developed model contributes to the formation of communication skills, natural science competence and competences related to learning skills and to support a healthy lifestyle and sustainable development;

The indicated contributions are important for pedagogical theory and practice, since on this basis models related to other topics of the curriculum in biology and in other academic disciplines can be developed and applied.

## **8. Evaluation of publications on the dissertation work**

Seven publications related to the dissertation research are presented. Two of the publications are independent, five are co-authored. Publications have been made in peer-reviewed journals. The submitted publications meet the requirements in terms of number and content. With this, they fulfill the recommended requirements.

## **9. Abstract**

The abstract was developed according to the requirements of the Rules for the Development of the Academic Staff of PU "P. Hilendarski" and accurately reflects the main results achieved in the dissertation research.

## **10. Critical remarks and recommendations**

I have no critical remarks about the presented materials and the dissertation research as a whole.

## **11. Personal impressions**

I do not know Nikola Vakrilov personally, but the presented dissertation research shows an ability to organize and present a serious pedagogical research, which I believe is a promise for a very good future scientific activity.

## **12. Recommendations for future use of dissertation contributions and results**

The developed methodical model for implementing debate can also be approved in other relevant topics of biology and health education. The experience created is good to publish to help teachers.

## **13. CONCLUSION**

The dissertation contains scientific, scientific-applied and applied results, which represent an original contribution to science and meet all the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria (ZRASRB), the Regulations for the Implementation of ZRASRB and the relevant Regulations of PU "Paisiy Hilendarski".

The dissertation shows that the doctoral student Nikola Stefanov Vakrilov has in-depth theoretical knowledge and professional skills in the scientific specialty "Methodology of teaching biology", demonstrating very good qualities and skills for independent conduct of scientific research.

Due to the above, I confidently give my positive assessment of the conducted research, presented by the above-reviewed dissertation work, author's report, achieved results and contributions, and I propose to the honorable scientific jury to award the educational and scientific degree "doctor" to Nikola Stefanov Vakrylov in the field of higher education: by field of higher education 1. Pedagogical sciences, professional direction 1.3 Pedagogy of training, Doctoral program: "Methodology of training in biology".

31.08. 2022.

Reviewer: .....

Prof. Dr. Galya Kozuharova