

## REVIEW

by **Assoc. Prof. Isa Isa Hadjiali**, Sofia University “St. Kliment Ohridski”

on a dissertation for awarding a **doctoral** degree in education and science

in: Field of higher education: **1. Pedagogical Sciences**

professional field: **1.3. Pedagogy of Teaching ...**

doctoral program: **Methods of Teaching in Biology**

**Author: Biser Sashkov Stanislavov**

**Subject:** *Web-based learning for a healthy lifestyle in Biology and Health Education in 8th grade*

**Doctoral supervisors:** Assoc. Prof. Margarita Yordanova Panayotova, PhD, and Chief Assistant Zlatka Petkova Vakleva, PhD

### 1. General description of the materials presented

By order No. RD – 21 – 1038 dated 9th June 2022 of the Rector of Paisii Hilendarski University of Plovdiv, I have been appointed as a member of the Scientific Jury to provide a procedure for the defense of a dissertation on the subject of: *Web-based learning for a healthy lifestyle in Biology and Health Education in 8th grade* for obtaining a **doctoral** degree in education and science in the Field of Higher education.

The set of paper and electronic materials submitted by the doctoral student is in accordance with Article 36 (1) of the Regulations for the Development of scientific staff of Paisii Hilendarski University of Plovdiv and includes the following documents:

- an application to the Rector of Paisii Hilendarski University of Plovdiv to initiate the procedure for the defense of a dissertation work;
- a curriculum vitae in European format;
- a protocol from the The Department Council related to reporting the readiness to open the procedure and preliminary discussion of the dissertation work;
- dissertation work;
- abstract of the dissertation;
- a list of scientific publications on the subject of the dissertation;
- copies of scientific publications;
- declaration of originality and authenticity of the attached documents;
- certificate of compliance with the specific requirements of the Faculty of Biology.

*I have been provided with all the required materials*, which have been duly arranged in an inventory. By accepting what has been declared, I certify that the results and contributions in the dissertation research are the author's work and there have been no borrowings (plagiarism) from research and publications in which the dissertation student has no participation. I also certify that everything presented corresponds to the objective truth.

### 2. Brief biographical data about the PhD student

Biser Stanislavov was born in 1971 in Ruse. In 1995 he graduated with a Master's degree (teacher of biology and chemistry) at Sofia University “St. Kliment Ohridski”, with thesis topic: *“Contribution to the problem of application of the network planning method in the selection and structuring of learning content for the topics “Metabolism of substances” and “Metabolism of energy” - Biology - 8th grade*, with scientific supervisor Associate Professor Alexander Panayotov, PhD. After graduation, he has had a successful career as a

teacher of Biology and Chemistry and/or Humans and Nature in various private, public and municipal schools in Sofia and the Ruse region. From August 2018 to July 2021 he has been a full-time PhD student at the Department of Botany and Biological Education, Faculty of Biology, Paisii Hilendarski University of Plovdiv.

In the period 2003 - 2018, the doctoral student completed 20 short-term courses and specializations to enhance the professional competence of the teacher in the field of didactics of biology, computer and language teaching. This fact demonstrates unequivocally that Mr. Stanislavov has pursued unremitting and focused continuing education in order to increase his professional pedagogical competence.

### **3. Relevance of the topic and expedience of the set objectives and tasks**

The topicality and perspective of the dissertation topic can be highlighted in the following two directions: 1. The proposed study is dictated by the need to optimize the integration of modern information and communication technologies in the field of health education at school, and 2. ICT technologies as a basis for modernization of the educational system in Bulgaria, which implies an immutable and irreversible inclusion of interdisciplinary-based learning technologies. The indicated two contextual pillars have been successfully centered in the outlined research niche by the candidate. I would like to emphasize right at the beginning of this review the exceptional value of the topic of the dissertation research for the development of pedagogical sciences and, in particular, for the Methods of Teaching in Biology.

### **4. Knowledge of the issue**

The text of the dissertation, especially in the first chapter, has convinced me that the candidate not only knows the state of the issue of Web-based learning as a subject of study by various sciences, but is able to analyze it purposefully in the outlined research “niche”. A particularly positive impression is made by the constructive involvement of various productions developed by representatives of different schools, often even contradictory. By competent grouping based on similarities and differences, the author manages to extract the positives from them and build a very good concept of his study. At the same time, this very good unbiased analysis of the state of the issue in the specialized literature, based on 133 (80 in Cyrillic and 53 in Latin) relevant and authoritative researched and scientifically correctly used titles, contributes in an acceptable discrete way to the creation of the conceptual model in the dissertation.

Here, however, I will allow myself to point out some flaws:

In the main text of the dissertation, some of the literary sources are indicated as independent, while in the bibliographic reference they are collective;

1. In the main text, literary sources such as Voyshvilo (1967, 164), Barker (2002), Ally (2008), etc. are indicated, but they are missing in the literature reference.

In my opinion, it would be a good idea if the main normative documents that are subjected to analysis, were given separately as notes rather than literary sources.

2. The PhD student's statement on page 32, “*The term “web-based learning” is not mentioned anywhere in the education-related documentation we have reviewed*”, to some extent, I think, contradicts the text on page 33 - *Ordinance No. 24 (MES, 2020) “..... there is now talk of a web-based distance learning system”*, which is a reason to ask the doctoral student the question: ***What is the difference between the two concepts?***

## 5. Methodology of the research

I rate that as productively conceived and competently implemented, especially in the part which is related to the formulation of the research tasks and hypothesis, and also in terms the appropriately chosen research methods: preliminary, main and final pedagogical experiment in natural conditions with a representative sample of 572 examined students from 8th grade in four schools in the country, theoretical research, conceptual modeling, content analysis, testing, surveying, expert evaluation and mathematical and statistical methods.

However, **I have the following remark** on the research setup and program: the wording “**The object** of research are the students of 8th (9th) grade from different schools in the country in the process of formation...”. Fixing the student as the object of research is inaccurate for the following reason: *the student is one of the subjects of the Methods of Teaching Biology, he/she is the bearer of part of the object of this science, but by no means represents the whole of it.* In my opinion, the object of the dissertation research is: *the competences for a healthy lifestyle among the students of 8th (9th) grade in the conditions of web-based learning.* With the above correction in the formulation of the object, I can certify that the research program has been successfully implemented by the dissertation student.

The hypothesis of the research is correctly formulated as relevant to the stated objectives and tasks, namely - *If our specially developed methodological model of web-based learning is applied in the teaching process for Biology and Health Education in grade 8, it will lead to .....* For me, this hypothesis, and of course its correct substantiation, is one of the main contributions of the dissertation. Otherwise, the research would become meaningless, it would lose the potential for practical application, the practical benefit for the personal development of the students through the teaching of Biology and Health Education.

In terms of its toolkit, the study is very well supported and I **assess the following aspects as very positive:**

A) The identification of an independent variable (web-based resources) and a dependent variable (students' achievements according to pre-set criteria and indicators for a healthy lifestyle). This has ensured sufficient “purity” of the experimental research.

B) The constructed diagnostic toolkit for the cognitive (tests) and affective domains (survey).

C) Following the essence and procedure of the experimental method, the author has worked with two groups of students - experimental and control. According to the rules, the two variants of learning are described: the experimental variant of learning, realized through the main and the final experiment, includes the independent application of one web-based resource ( $B_1$ ) and the use of a combination of two or more web-based resources ( $B_2$ ), with the control variant ( $B_K$ ) learning is carried out through traditional methods and means of work, without the use of web-based resources.

## 6. Characterization and evaluation of the dissertation work

Biser Stanislavov's dissertation is a scientific product with indisputable positive qualities of empirical pedagogical research in the Methodology of Teaching Biology. The dissertation is formatted in a synthesized body of work - main part and appendices, which allows the evaluation of the overall theoretical-methodical and methodical-practical contribution.

The main body of the dissertation is appropriately organized into an introduction, three chapters, a conclusion and inferences, a reference to the contributions of the dissertation

research, publications on the topic of the dissertation, and a bibliography. The total volume is 164 pages of text, 83 tables, 73 figures. The second part (in a volume of 36 pages) is composed of seven appendices. I rate the appendices as relatively self-contained in terms of the contributory nature of the entire dissertation.

I accept the organization of the scientific and theoretical propositions for researching the dissertation issue into two chapters: 1) Chapter One “Theoretical study of the researched issue”; 2) Chapter Two “Methodology of pedagogical research”. Respecting the candidate's right to choose, I would suggest that the methodological framework of the research should be the first chapter of the dissertation work. A rich and in-depth palette of concepts and propositions essential for quality integration of web-based resources in the learning process has been outlined.

The third chapter is dedicated to “Results of the pedagogical experiment and their analysis” It includes the presentation, statistical processing and analysis of the empirical and experimental evidence collected by the author. I could not refrain from exclaiming: “An extraordinary wealth of empirical evidence, competently presented, processed and analyzed!”.

One of the particularly valuable points that can be highlighted is the possibility to multiply the modelled dissertation product and also to transfer it to other subjects. This is one of the outstanding merits of the dissertation. The clearly demonstrated and proven practical benefits for both students and interested teachers is equally valuable.

In particular, I would like to point out the scientific and research value of schematizations in the second and third chapters. This is an indication of the author's highly developed pedagogical reflection on the conceptually and empirically modeled phenomena.

### **7. Contributions and significance of the dissertation work in science and practice**

The candidate has identified nine contributions - two at the theoretical level and seven at the practical and applied level. Although I remain tolerant of the PhD student's opinion, I will take the liberty to make the following comments to refine some of the contributions, for example:

- the first contribution at the theoretical level - *An attempt is made to define the place of web-based learning ....*

- some of the contributions at the practical and applied level, such as: “*some parts of the present dissertation research have been reported at national scientific conferences and published in specialized pedagogical publications*”, or that “*didactic tests, relevant criteria and indicators for the diagnosis of competences for a healthy lifestyle, formed in the process of teaching Biology and Health Education for 8th grade*”.

In my opinion, it is questionable whether these didactic tests can qualify as a contribution, as they need special validation and standardisation for such a purpose.

The comments made on the contributing elements of the dissertation research in no way diminish the qualities of the dissertation work and its original contribution to biomethodological theory and practice.

### **8. Assessment of publications on the dissertation**

The doctoral student has attached a list of 6 articles published between 2018 and 2022. One of them is published in “Collection of reports from a Student Scientific Conference”, 4 have been published in “Scientific works of the Union of Scientists in Bulgaria - Plovdiv” and another one - in “Pedagogical Forum, DIITT - Trakia University”. Two of them are in-

dependent and four are co-authored with the scientific supervisors. The publications are thematically related to the topic of the doctoral dissertation.

#### **9. Personal involvement of the doctoral student**

The doctoral student's personal involvement is, in my opinion, beyond question. The style is recognizable in the dissertation, the abstract and the scientific publications. As for my assessment of the PhD student's research skills, I can say they are excellent.

#### **10. Abstract of the dissertation**

I certify that the abstract reflects the dissertation work in a summarized and concise form.

#### **11. Critical remarks and recommendations**

Some critical notes, in the sense of the term “critical”, here will inevitably enter the field of the discussion and defense of various positions on a given issue and would be rather polemical in nature. In this sense, I have no substantive criticisms other than those mentioned above in the review.

#### **12. Personal impressions**

I have not met the doctoral student personally, but as a teacher at the Faculty of Biology of the Sofia University “St. Kliment Ohridski”, I was very interested to read the content of his thesis on the issue of network planning and was fascinated by the quality of the thesis.

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

Here are my recommendations to PhD student Biser Stanislavov:

1. Publication of a handbook (together with the scientific supervisors) presenting the main highlights of the research and the scientific and applied results;
2. Promoting the issue of integrating ICT-technologies in secondary school biology education.

### **CONCLUSION**

The dissertation work of Mr. Stanislavov as an idea, relevance of the issue, research concept, development, results and contributions fully satisfy all the requirements of the Act for the Development of the Academic Staff in the Republic of Bulgaria (ADASRB) and the Regulations for its application. The materials presented by the doctoral student are in accordance with the specific requirements of **Paisii Hilendarski University of Plovdiv**. The PhD student possesses in-depth knowledge and professional skills in the Methodology of Teaching Biology field, demonstrating qualities and skills for independent conduct of scientific research.

Based on everything stated up to this point, I give my positive vote and propose to the honorable Scientific Jury to vote positively and award **Biser Sashkov Stanislavov** the educational and scientific “**DOCTORAL DEGREE**” in the field of higher education - 1. *Pedagogical Sciences*; professional field - 1.3. *Pedagogy of Teaching in...*; doctoral program - “*Methods of Teaching in Biology*”

30. 08. 2022

Reviewer: .....

(Assoc. Prof. Isa Hadjiali, PhD)