OPINION

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Department of General and Inorganic Chemistry with Methodology of Teaching Chemistry
of dissertation for the creation of the educational and scientific degree **"Doctor"**
by field of higher education *1. Pedagogical sciences*
professional management *1.3. Pedagogy of teaching…*
doctoral program *Methodology of teaching biology*

Author: *Biser Sashkov Stanislavov*

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

Scientific adviser: *Assoc. Prof. Margarita Yordanova Panaiotova, PhD – Plovdiv University "Paisii Hilendarski", Chief Assistant Zlatka Petkova Vakleva, PhD – – Plovdiv University "Paisii Hilendarski"*

1. General description of the materials submitted and the procedure

The materials presented by doctoral student *Biser Sashkov Stanislavov* are in accordance with the requirements of the Law on the Development of the Academic Staff of the Republic of Bulgaria, as well as Art. 36 (1) of the Regulations for development of the academic staff of University of Plovdiv "Paisii Hilendarski". The set of documents includes:

– request to the Rector of the University of Plovdiv for disclosure of the procedure for defense of the dissertation;

– CV in European format;

– Minutes of the Department Council, related to reporting on the readiness to open the procedure and preliminary discussion of the dissertation work;

– dissertation work;

– author's abstract;

– declaration of originality and authenticity of the attached documents;

– reference for compliance with the minimum national requirements;

– list of 6 scientific publications on the topic of the dissertation;

– copies of scientific publications.

The scientific jury for the procedure for the defense of the dissertation was selected and approved by Order № RD-21-1038 of 09.06.2022 of the Rector of Plovdiv University "Paisii Hilendarski" pursuant to Art. 4 of the Law on the Development of the Academic Staff of the Republic

of Bulgaria (LDASRB) and in accordance with Art. 2 (2), Art. 30 (3) of the Regulations for application of LDASRB and Art. 37 (1) of the Rules for Development of the Academic Staff of Plovdiv University "Paisii Hilendarski".

2. Topicality of the subject

The education system should be adapted to the needs and specificities of the digital generation being trained. There is a need to create a technological learning environment in which innovative learning methods are applied, where students are active participants in learning activities. At the same time, adolescents should form key digital competences that they will need in modern technological society.

The dissertation study presents an author's methodological model for forming competences for a healthy lifestyle by using web-based technologies in the subject Biology and Health Education in 8th grade. The topic is up-to-date and corresponds to the needs for integration of modern digital technologies and the competence approach in the realization of a learning process laid down in the legal and normative documents.

3. Knowledge of the problem

The doctoral student has studied and analyzed correctly the specialized literature on the problem of forming competences for a healthy lifestyle in students using web-based training. The total number of literary sources quoted is 133, of which 81 titles are in Cyrillic, 52 titles in Latin. The author knows the problem in both theoretical and practical terms, which is a good basis for conducting the study and developing the dissertation work.

4. Research methodology

The methodology chosen by doctoral student *Biser Stanislavov* for conducting the study is adequate to the goals and tasks set, which is an important prerequisite for obtaining objective results. In the dissertation work are applied a variety of methods of scientific research: (1) theoretical study; (2) conceptual modeling of electronic educational resources – a model for the formation of competences for a healthy lifestyle (Chapter Two, Fig. 2.8 in the dissertation); a model for building the concept of a healthy lifestyle (Chapter One, Fig. 1.19 in the dissertation); model with the application of web-based training in biology and health education lessons in 8. class for the formation of a healthy lifestyle (Chapter Two, Fig. 2.1 in the dissertation); modeling of the site "I know about 7"; (3) a contingent analysis of the learning documentation on the concepts related to web-based learning; (4) pedagogical experiment; (5) testing; (6) inquiry; (7) expert evaluation; (8) mathematical and statistical methods for analyzing data from the pedagogical experiment. The methods of pedagogical research and the means for their realization have been appropriately selected.

5. Characteristics and evaluation of the dissertation work and contributions

The dissertation work is structured in an introduction, three chapters, conclusion and conclusions, contributions, publications on the subject, bibliography and 7 applications. The total volume is 201 pages, of which 165 are body text. The dissertation is richly illustrated – 83 tables and 74 figures are included.

The introduction justified the choice of the theme of the dissertation in relation to the need to integrate modern information and communication technologies in the field of health education in secondary school.

Chapter One traces the history of web-based learning. Comparatively, in the form of tables, the basic concepts related to web-based learning are derived. The doctoral student has presented in a hierarchy the working concepts, relationships and relationships between them. A theoretical study of web-based learning models has been carried out, which are illustrated with appropriate figures. The characteristics of the most common systems for the delivery of web-based resources and for the management of web-based training have been revealed. The essence, content and features of web-based learning are presented in 17 figures and 12 tables.

The first chapter of the dissertation highlights the concepts close to the concept of web-based learning, which are included in the normative documents for education in Bulgaria. A comparative analysis of traditional training and web-based learning has been carried out. The advantages and disadvantages of some components of web-based training in Biology and Health Education in 8th grade have been identified (Power Point presentation, electronic textbook, electronically readable textbook). The methodological aspects of web-based learning are presented in 7 tables.

Chapter One clarifies the content of the concepts of health, healthy lifestyle. A methodological model has been created to build the concept of a healthy lifestyle. Data from various studies related to the healthy lifestyle of students in Bulgaria are presented and relevant conclusions are formulated on the basis of the data. A content analysis of the key concepts of healthy lifestyle included in the Curriculum in Biology and Health Education in 8th grade has been carried out. Regulation № 13 on Civil, Health, Environmental and Intercultural Education. On the basis of the analysis, the need for the development of appropriate technology for the presentation of learning content in 8th grade is justified (Chapter Three of the dissertation). The content and components of the concept of competences for a healthy lifestyle are presented by the doctoral student in 4 tables and 4 figures.

Chapter Two accurately and correctly defined the methodology of the study (object, subject, purpose, tasks and hypothesis of the study). The activities carried out during the different stages of the pedagogical survey are systematized. The methodological model for forming competences for a healthy lifestyle through web-based training in Biology and Health Education – the main components of the model and the interconnections between them is presented. For the realization of the developed

model, author's web-based educational resources for the educational content of Biology and Health Education in 8th grade were created – a website "I know about 7" was created, which uploaded the educational resources used in the pedagogical experiment. Educational resources have also been developed for the site "Learn" (lessons, tests), which are also used in the pedagogical survey. Methodological developments of lessons used in the pedagogical experiment are presented, which can be directly used in pedagogical practice in biology.

A system of criteria and indicators has been developed to diagnose students' competences for a healthy lifestyle. They were used in the construction of 4 didactic tests to establish the degree of formation of competences for a healthy lifestyle.

Chapter Three presents the results of the pedagogical experiment conducted, their statistical analysis and interpretation. This chapter is rich in evidence – tables, figures, diagrams. The pedagogical experiment is presented with special care and precision. The experimental data obtained from the three stages of the study confirm the built working hypothesis.

Conclusions of the dissertation study are formulated in conclusion, presents theoretical and practical and applied contributions, as well as outlines the guidelines for future research on the issue under consideration.

Applications present the developed 4 didactic tests, a key with the correct answers and the scale for evaluating each of the tests, a survey to study adolescent attitudes towards a healthy lifestyle.

6. Assessment of the publications and personal contribution of the doctoral student

The results of the different stages of the pedagogical survey were reported at 3 conferences and were formed in 6 articles published in various specialized journals. Of the publications, 2 are independent and 2 are first authored. The proposed publications are evidence of the good promotion of the results of the survey, as well as the ability of the doctoral student to work in a team. The number and quality of publications meet the requirements of the Rules for Implementation of the Law on The Development of Academic Staff in the Republic of Bulgaria.

I have no doubt that the research in the current dissertation and the publications to it are the personal work of the doctoral student *Biser Stanislavov*. I have not established plagiarism in the materials submitted to me for review.

7. Abstract

The author's report reflects the essence of the theoretical staging, the studies carried out, the conclusions and contributions received. The volume of the author is 32 pages, which allows the reader to quickly familiarize himself with the ideas and contributions in the dissertation.

8. Recommendations for future use of dissertation contributions and results

The current dissertation and methodological publications present doctoral student *Biser Stanislavov* as a professional and skilled researcher. It follows from the formulated conclusions and contributions to the dissertation that there is an interesting and up-to-date study with practical application, which is appropriate to promote among Bulgarian teachers and to be implemented in practice. I would recommend that the doctoral student continue his work on the guidelines outlined in the dissertation for future studies and development.

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 Development of Academic Staff in the Republic of Bulgaria (LDASRB), the Regulations for implementation of LDASRB and the relevant Regulations of the University of Plovdiv "Paisii Hilendarski".

The dissertation shows that the doctoral student *Biser Sashkov Stanislavov* has in-depth theoretical knowledge and professional skills in the scientific specialty Methodology of teaching biology, demonstrating qualities and skills for independent research.

Due to the above, I confidently give my *positive assessment* of the research presented by the above peer-reviewed dissertation, abstract, results and contributions, and *propose to the esteemed scientific jury to award the educational and scientific degree "doctor" of Biser Sashkov Stanislavov* in the field of higher education: 1. Pedagogical sciences; professional field: 1.3. Pedagogy of teaching in ...; doctoral program: Methodology of teaching biology.

09 August 2022 **Author of the opinion**: …….

Plovdiv (Assoc. Prof. Antoaneta Angelacheva, PhD)