

STATEMENT

in a competition to occupy the academic position of "Associate Professor" in the professional field 1.3. Methodology of education in..., scientific specialty Methodology of education in mathematics and informatics, announced in the State Gazette, issue 38/28.04.2023, for the candidate Ph.D. Elena Koleva Kovacheva
Member of the scientific jury: Prof. Ph.D. Nikolay Stoyanov Kolishev

I. General characteristic of the research and scientific and applied activity of the applicant.

Ph.D. Elena Kovacheva has submitted 46 publications in the list of categories of indicators determining the minimum requirements for acquiring the academic position of "Associate Professor" according to the Law on Regional Development of the Republic of Bulgaria, Art. 2b, paragraph 2 and 3. The list includes 1 monograph, 2 articles published in scientific journals, referenced and indexed in world-famous databases of scientific information, 32 articles and reports published in non-referenced peer-reviewed journals or published in edited collective volumes, 2 studies published in edited collective volumes, 1 textbook on information technology for 9th grade (co-authored), 8 books for the teacher (2 on computer modeling for 3rd and 4th grades and 6 on information technology for 5th, 6th, 7th, 8th, 9th and 10th grades) (co-authored).

The main focus of the publications are the characteristics of various software and hardware tools suitable for application in the learning process. Two aspects of analysis are present in the publications: as learning content and as a learning tool.

Another focus in the publications is the development of teachers' digital skills. A number of productive ideas for improving the skills of pedagogical specialists as teachers or administrators have been justified.

The third emphasis that can be highlighted is related to the methodological requirements ensuring the effective application of information and communication technologies as a learning tool.

As common characteristics for all presented publications, we can highlight the following: the actuality of the subject matter; logical structure; precision in the definition and use of basic concepts; competent systematization and analysis of significant literary sources; justification of productive practical ideas; highly professional language and style of exposition.

The monograph justifies a model of training of teachers in computer modeling, the effectiveness of which has been proven through a properly organized and implemented methodological experiment.

The habilitation work of Ph.D. Elena Kovacheva, with which she participated in the competition for Associate Professor, is the monograph "The Teacher and Computer Modeling in School".

The monograph is structured in three chapters, an introduction and a conclusion.

The first chapter systematizes the theoretical information about computer modeling in education. In the second chapter, the theoretical model of training teachers in computer modeling is justified and its practical implementation is presented. The third chapter is devoted to experimental model verification.

The monograph has the following indisputable merits:

1. The developed theoretical model of teacher training in computer modeling is didactically justified because it includes methodological projections of the following didactical components: purpose of training, learning content, methods, forms and means of training, control and evaluation of learning achievements.

2. The model has been experimented with by training computer modeling teachers in several qualification courses and in a professional pedagogical specialization. More than 500 teachers participated in the trainings.

3. The effectiveness of the model was verified by an experiment, the staging of which is in accordance with the requirements of the methodology and methodology of pedagogical research.

Teachers' learning achievements are presented and competently analyzed. A survey was conducted on the attitude of the participants in the courses towards the organization and the content of the trainings.

II. 2. Assessment of the pedagogical preparation and teaching activities of the applicant

Ph.D. Elena Kovacheva has led lectures and exercises for students with both bachelor's and master's degrees and for participants in postgraduate training for acquiring the professional qualification "Teacher" in the following disciplines:

- Methodology of training in informatics;
- Methodology of computer modeling training;
- School course in computer modeling;
- Visual programming in a block environment;
- Basics of algorithms;
- Innovative approaches in computer modeling training;
- Information and communication technologies in training and work in a digital environment;
- Project-based approach to learning;
- The student portfolio in training;
- Cloud technologies (Master TCMT, cat. TKK, TU-Varna);
- Social pedagogy (Bachelor SM, cat. ECD, Technical University of Varna);
- General pedagogy (Bachelor SM, cat. ECD, Technical University of Varna);
- Social pedagogy (Bachelor SM, cat. ECD, Technical University - Varna), etc.

The applicant has conducted thematic courses with teachers and trainings on national programs and projects on the following topics:

- Cloud technologies for effective communication at school;
- Cloud technologies - a means of implementing modern management models of educational institutions;
- The interactive whiteboard as a means of applying innovative approaches in learning;
- Basic digital competences for the implementation of innovative approaches in training;
- Application of a toolkit for early identification of students at risk of early leaving the education system and for a differentiated approach in determining their needs for providing individual support;
- Methodological guidelines for managing a modern educational process (V and IV course for professional qualification degrees);
- Problem-oriented training for the formation of key competences;
- The process of training in information technology in 7th and 9th grade;
- Importance of STEAM training for the development of scientific and computational thinking in the students;
- Innovative approaches to organizing stem training;
- Multimedia didactic tools in kindergarten;

I have immediate impressions of the teaching activity of the candidate and I can say that she has developed the ability for logical, in-depth, challenging and informative oral exhibitions, as well as the ability to motivate the trainees and create an interactive educational environment. The textbooks and teaching aids presented by her, support this impression because they are distinguished by competently systematized theoretical and practical information, with resonant accents on the essential and thought-provoking issues. The language and style of the exhibition are understandable and accessible for the specific readership group and with an intriguing way of presenting the curriculum.

III. Basic scientific and applied scientific contributions

The main scientific and applied research contributions in the publications of Ph.D. Elena Kovacheva can be summarized as follows:

1. It is justified and an experimental model of training of teachers in computer modeling has been verified. The experimental methodological model is didactically justified because it integrates competently formulated goals, precisely selected learning content, adequate methods and means of training and productive course of classes.
2. A theoretically justified and practically applicable system of criteria and indicators has been developed, on the basis of which a toolkit has been developed to establish the effectiveness of the experimental model. I must emphasize that the principles on which this system is based are also applicable to the experimental verification of other teacher training models.
3. Effective methodological options for the application of information and communication technologies have been developed in the process of training in various subjects – interactive whiteboard, multi-mindedness technologies, cloud technologies, etc.
4. A classification of various information technologies as a didactic tool was made based on their functionality.

IV. Importance of contributions to science and practice

In theoretical terms, the methodology of training in informatics and information technology is enriched with a scientifically based and practically applicable model of teacher training in computer modeling.

The methodological options for the application of information and communication technologies in the process of training in various subjects – interactive whiteboard, multimedia technologies, cloud technologies, etc., justified in the publications, have indisputable practical significance.

VI. Comments and recommendations.

The publications presented by Ph.D. Elena Kovacheva did not provoke critical remarks.

The recommendations are related to the continuation of research dedicated to the justification and experimental verification of teacher training models for mastering the application of information and communication technologies in the learning process in various subjects.

VII. Personal impressions and opinion of the reviewer

My impressions of the teaching activity of Ph.D. Elena Kovacheva are immediate and I can confidently state that it is characterized by high professionalism, manifested in the excellent mastery of monological and dialogical methods of training, in the developed ability to achieve attractiveness of training and in the ability to set constructive requirements and control their implementation.

CONCLUSION

In conclusion, I can rightly state that **I evaluate positively** the quality of the systematization and theoretical analysis in the presented publications and the productive practical ideas contained there for improving the training of teachers to master the application of information and communication technologies. The scientific and applied contributions in the publications of Ph.D. Elena Kovacheva, as well as her teaching activities, are at a level that fully meets the legal requirements for occupying the academic position of "Associate Professor" in the professional field 1.3. Methodology of education in..., scientific specialty Methodology of education in mathematics and informatics.

The member of the scientific
prof. Nikolay Kolishev, D.Sc

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