

STATEMENT

by Prof. Georgi Velkov Kolev, DSc

regarding the occupation of the academic position of "professor" in the field of higher education 1. Pedagogical sciences, professional direction 1.3. Pedagogy of teaching in... (Methodology of teaching mathematics in primary grades) in the Department of "Preschool and Primary School Pedagogy" at the Faculty of Pedagogy of the "Konstantin Preslavsky" University of Shumen

1. Regarding the procedure of the competition and the candidate

The competition for occupying the academic position of "**professor**" in the field of higher education 1. Pedagogical sciences, professional direction 1.3. Pedagogy of teaching in... (Methodology of teaching mathematics in primary grades) in the Department of "Preschool and Primary School Pedagogy" at the Faculty of Pedagogy of the "Konstantin Preslavsky" University of Shumen was announced in the State Gazette, issue 82 on 14.10.2022. Only one candidate, Assoc. Prof. Kalina Ivanova Alexieva, PhD, participated in it. She submitted an application to the Rector of the University with all required documents attached within the deadline. From the reference for the fulfillment of the minimum national requirements under Art. 2B, Para. 2 and 3 of LDASRB it is clear that the number of points (the total number of points from indicators: A (50)+B (100)+D(220)+D(335)+E(160) = 865) meets the requirements for occupying the position of "professor". That is why the procedure is legal and can be finalized by the vote of the selection jury.

Kalina Ivanova Aleksieva graduated in 1984 with a major in *Mathematics* (mathematics teacher), in 2014 she obtained a master's degree in the master's program "Pedagogical Rehabilitation of the Mentally Retarded".

In the period 1986-1994, she was a teacher, technical assistant at the Faculty of Public Professions. From 1994 to the present, the candidate has been working at the "K. Preslavsky" University of Shumen, where she holds both administrative and teaching positions. She was the coordinator of the dean's leadership in the Faculty of Pedagogy, a specialist in the Department of Special Pedagogy. Currently, she is the head of the Preschool and Primary School Pedagogy Department. She held the positions of assistant, chief assistant, senior lecturer. In 2018 she acquired the academic title of "Doctor" in the Field of Higher Education 1. Pedagogical Sciences, Professional Direction 1.3. Pedagogy of teaching in... (Methodology of teaching mathematics and informatics), and since 2020 she holds the academic position of "associate professor" in the field of higher education 1. Pedagogical sciences, professional direction 1.3. Pedagogy of teaching in... (Methodology of teaching mathematics in the initial stage of education).

2. Scientific production

The scientific publications with which Assoc. Prof. Kalina Alexieva, PhD participated in the announced competition for the academic position of "professor" were issued in the period 2019-2022. Those presented in the review list are: a monograph, habilitation thesis - 1 pc.; published monograph, which is not presented as the main habilitation work – 1 pc.; articles – 15 pcs.

2.1. Monographs

2.1.1. The monograph "*Modeling and visualization in creative work in mathematics. Shumen: UPH "Konstantin Preslavsky", 2022, ISBN 978-619-201-645-6, 176 pp.* is a habilitation work that aims to emphasize the practical significance and role of modeling and visualization as a leading method and means of teaching mathematics. Innovative technological options are presented for solving mathematical and practical tasks in primary school mathematics with the help of didactic modeling. The text is structured in an introduction, two chapters, deductions and a conclusion. *The first chapter* presents a set of theoretical statements, concepts and views of many scientists regarding the principle of visualization and its implementation in the modern stage of mathematics education. The problem of the nature of models and modeling in mathematics education is considered. The application of graphic visualization and modeling in mathematics education is defined in a theoretical-practical plan. The relationship between modeling and visualization with a view to achieving accessibility in the learning process is demonstrated. The concept of a *creative task* and the concept of a *creative activity* in mathematics education are analyzed. The basic requirements, principles and rules regarding the thematic structuring of the learning content in the elective lesson are specified, which are used to contribute to the optimal development of the mathematical competences of children in the primary grades. In the *second chapter, structural, structural-functional and mathematical-logical models* of mathematical and practical tasks (elementary and compound) are offered. *The structural models* are presented with an *Euler-Venn diagram* (13 tasks), *the structural-functional models* are presented with *squares and arrows diagrams* (21 tasks) and with *a drawing* (16 tasks), and *the mathematical-logical models* are presented with *tables* (26 tasks from Diophantine equations and 20 logical problems) and with a *tree diagram* (12 problems).

2.1.2. "*Didactic-methodological technologies for the formation of elementary mathematical concepts. Shumen: UPH "Konstantin Preslavsky", 2022, ISBN 978-619-201-644-9, 182 pages* is a **monograph that is not presented as a main habilitation work**. The purpose of the book resonates with the respect of the good traditions in our educational system and with their presentation in accordance with the normative documents reforming the Bulgarian education.

In the first part, basic didactic and psychological theoretical propositions are presented, which are the basis of the development of mathematical concepts in children. The candidate analyzes problems related to: the role of education in building mathematical concepts; the nature of mathematical concepts; mathematical thinking and thought processes in the formation of abstract mathematical concepts.

The second part examines the concept of Al. Madzharov for the formation of elementary mathematical concepts and the methodical system of their introduction at school in the context of modern productions for the implementation of the learning process in mathematics in grades I - IV.

2.2. Articles:

The scientific output of associate professor K. Alexieva, PhD in the form of articles is aimed at: Mathematics education in I-IV grades in the context of current settings with an emphasis on: the concept of the development of mathematical abilities by solving various types of non-standard tasks; the use of graphic language in mathematics lessons; the role of the elective lesson in mathematics for the development of the mathematical abilities of children in

primary grades; the place of text tasks and the role of games for the formation of mathematical competences; continuity between preparatory groups in kindergarten and first grade; the methodical training of mathematics teachers in primary education.

3. Citations

The specified texts with which Assoc. Prof. Kalina Aleksieva, PhD applied for the competition, are of interest to pedagogical specialists. *Citations* were noticed in 36 publications, of which: 1 in scientific publications, referenced and indexed in world-renowned databases of scientific information or in monographs and collective volumes; 29 pcs. in peer-reviewed monographs and collective volumes and 6 in non-refereed peer-reviewed journals (According to the citation reference provided by the candidate).

4. Contributions

The contributions presented by Assoc. Prof. Kalina Alexieva are in three aspects (reference to original scientific contributions):

- **theoretical-systematic plan** – general and special issues are analyzed, didactic-methodical technologies and solutions are proposed in the context of modern educational paradigms related to the main goal and task of mathematics education in primary grades: *the formation of initial (basic) mathematical concepts*; a comparative description of established methodological systems for the formation of elementary mathematical concepts (number, arithmetic operations with numbers, properties) and the structuring of the educational content in mathematics in grades I–IV during the years of educational reforms in our country (1973–2016) is presented; Theoretical positions of Bulgarian and foreign scientists on problems related to mathematical modeling and its direct relationship with the implementation of the principle of visuality in mathematics education have been presented; The problems related to the development of mathematical thinking as a component of the mathematical abilities of elementary school students and the importance of mathematical education for their upgrading are analyzed; the application of didactic modeling as the main and leading method of knowledge in mathematics education is theoretically justified;

- **experimental-research** - based on the results of the theoretical-systemic research, by using the holistic, competence and integrative approach, an author's concept of the experimental-research work was developed, the structural components of which are reflected in the published scientific works;

- **practical-applied plan** – systems of tasks have been created on six main topics in the field of structural and structural-functional modeling in creative work in mathematics. For the development of mathematical abilities and intellectual development of students of primary school age, systems of creative exercises (for working on ready-made models of text tasks; on building models of text tasks), as well as variant tasks, have been developed and tested in the learning process with students for composing text tasks by: *abbreviated record, schematic model, graphic model, by data from a table, by mathematical model, etc.*

5. Conclusion

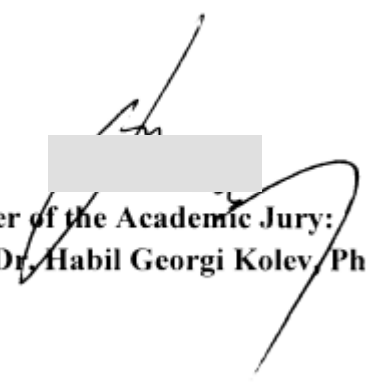
The studied published works of the candidate, the points of contribution, as well as the reference for the fulfillment of the minimum national requirements under Art. 2B, para. 2 and

3 of LDASRB give me the reason to summarize the conclusion that substantiates my proposal for the election of Associate Professor Kalina Ivanova Aleksieva, PhD for the academic position of "Professor".

Based on what is described and reasoned in the opinion regarding the academic and research activity of Assoc. Prof. Kalina Alexieva, PhD, I propose to the respected scientific jury to vote with a positive vote on her election to the academic position of "professor" in the field of higher education 1. Pedagogical Sciences, professional direction 1.3. Pedagogy of teaching in... (Methodology of teaching mathematics in elementary grades) in the Department of *Preschool and Primary School Pedagogy* at the Faculty of Pedagogy of the "Konstantin Preslavsky" University of Shumen.

3.01.2023

Shumen



Member of the Academic Jury:
(Prof. Dr. Habil Georgi Kolev, PhD)