

STATEMENT

by Prof. Dr. Violetta Kyurcchiyska,

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for 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 elementary grades) in the Department of "Preschool and Primary School Pedagogy" at the Faculty of Pedagogy of the "Konstantin Preslavsky" University of Shumen

1. Contest details

The competition for 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) was announced in SG No. 82/14.10.2022, for the needs of the Department of Preschool and Primary School Pedagogy at the Faculty of Pedagogy of the "Konstantin Preslavsky" University of Shumen.

Assoc. Prof. Kalina Ivanova Alexieva, PhD applied within the specified period announced in the State Gazette. In the application to the rector of the "K. Preslavsky" University of Shumen from 10.12.2022, she submits the necessary documents that meet the requirements for the announced competition. Associate Professor K. Aleksieva, PhD, is the only candidate. The attached report on the implementation of the minimum national requirements under Art. 2B, paras. 2 and 3 of the LDASRB has been prepared, indicating the number of points according to the relevant indicators. The total number of points from indicators: A (50)+B (100)+D(220)+D(335)+E(160) is 865. This gives grounds to conclude that the minimum national requirements for taking the academic position of "professor" are met.

2. Applicant data

Kalina Ivanova Alexieva graduated in 1986 with a major in Mathematics, and in 2014 she obtained a master's degree in the master's program "Pedagogical Rehabilitation of Mental Retardation". The education in both specialties was at the "K. Preslavsky" University of Shumen.

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. In it, she successively held the positions of assistant, chief assistant and senior lecturer. In 2018, Kalina Alexieva successfully defended her dissertation work in the field of higher education 1. Pedagogical sciences, professional direction 1.3. Pedagogy of teaching in ... (Methodology of teaching mathematics and informatics).

In 2020, she claimed 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).

Assoc. Prof. K. Aleksieva, PhD is the head of the department at the Faculty of Pedagogy of the "K. Preslavsky" University of Shumen. From 2020, under her leadership, the Department

of Preschool and Primary School Pedagogy implements the activities of the bachelor's and master's programs.

3. Description of scientific works

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

The monograph *"Modeling and visualization in creative work in mathematics"*, Shumen: UPH "Konstantin Preslavsky", 2022, ISBN 978-619-201-645-6, 176 pages is a habilitation thesis structured in an introduction, two chapters, deductions and a conclusion. In the first chapter, three important starting points for mathematics education are presented: the principle of visibility, creative work and the formation of mathematical competence. The possibilities offered by the classes for elective preparation in mathematics in the context of the differentiated and individual approach are outlined.

In the second chapter, the author argues for the use of structural models in the process of solving creative tasks. Special attention is paid to the tasks that are intended for working with students with outstanding mathematical abilities in classes for optional preparation or for mathematical competitions, Olympiads, and other extracurricular forms.

In the final part of the monograph, general didactic and practical-applied conclusions are drawn, as a result of the direct methodical and research work of the author.

The monograph *"Didactic-methodological technologies for the formation of elementary mathematical concepts"*. Shumen: UPH "Konstantin Preslavsky", 2022, ISBN 978-619-201-644-9, 182 pp. is not presented as the main habilitation thesis. The text is a response to the modern settings in the teaching of mathematics at the primary stage. In the first chapter, basic didactic and psychological theoretical propositions are presented, which are the basis of the construction of mathematical concepts in children. The formation of basic mathematical concepts is presented in the second chapter, emphasizing the methodical system of their introduction in school.

The normative framework regulating the process of learning mathematics in the elementary stage is presented in the third chapter of the text. In a comparative plan, the educational content in mathematics in the curricula of 2001 and 2016 is presented.

The scientific articles, 15 in number, have been published in prestigious scientific journals. All of them reflect the scientific and applied activity of the candidate after acquiring the academic position of "associate professor", aimed at the research and popularization of concepts, models, technologies and possibilities of current topics related to the problems of the methodology of teaching mathematics in I-IV grade.

The analysis of the scientific works submitted by Assoc. Prof. K. Alexieva, PhD for participation in the announced competition shows that they are sufficient in quantity and content oriented to current problems in the field of teaching methodology in mathematics for the primary educational stage. The publications submitted for participation in the competition do

not repeat those for the acquisition of the academic degree of «doctor» and the scientific title «associate professor».

4. Scientific contributions

The specificity of the professional direction of the competition, the conducted theoretical and applied research, as well as the specific thematic directions in the scientific output of the candidate for the position of “professor”, Assoc. Prof. Kalina Alexieva, PhD, allow the summarization of two main groups of scientific contributions: theoretical and practical-applied.

Theoretical: A content analysis of current normative documentation was carried out, modern scientific concepts related to the teaching of mathematics in the primary educational stage with a view to organizing an effective educational process were identified. The problems related to the development of mathematical thinking as a component of the mathematical abilities of children in primary school and the importance of mathematics education for their development were analyzed. Basic requirements, principles and rules are derived, which are a starting point in building any system of tasks aimed at the development of mathematical abilities. The application of didactic modeling as the main and leading method of knowledge in mathematics education is theoretically justified.

Practical-applied: A study was conducted with an author-constructed toolkit and indicators for checking mathematical competence (knowledge of numbers, quantitative concepts, knowledge of actions with numbers, measurement, geometric figures and shapes, logical tasks) in the preparatory period. Relevant conclusions and recommendations are drawn for guidance in building a correct methodology for the formation of basic mathematical concepts and optimal structuring of the learning content in first grade. 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 educational process with students for composing text tasks by: *abbreviated record, schematic model, graphic model, by data from a table, by mathematical model, etc.*

In the documentation for the competition, Assoc. Dr. Kalina Alexieva applies 36 citations, of which: 1 in scientific publications, referenced and indexed in world-renowned databases with scientific information or in monographs and collective volumes; 29 in monographs and peer-reviewed collective volumes and 6 in non-refereed peer-reviewed journals.

5. Conclusion

The documents and publications presented by Associate Professor Kalina Alexieva, PhD meet the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for its Implementation and the relevant Regulations of the University of Shumen.

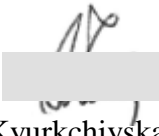
The candidate has submitted a sufficient number of scientific works to participate in the competition. In the presented publications there are original scientific and applied contributions, and a large part of them are directly oriented towards the education of students.

The teaching-pedagogical activity includes competent scientific supervision of doctoral students, students and teachers, which is a confirmation of the professional capabilities of Associate Professor Kalina Alexieva and is related to the scientific field and the professional direction of the competition.

After getting familiar and analyzing the materials and scientific production presented by the candidate for participation in the competition, taking into account their significance and the theoretical and practical-applied contributions they contain to the methodology of teaching mathematics for the primary educational stage, as well as the fulfilled minimum national requirements for Art. 2b of LDASRB, I give my positive assessment for the occupation of the academic position of "professor" by Assoc. Prof. Kalina Ivanova Alexieva, PhD 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* of the "Konstantin Preslavsky" University of Shumen.

2.01.2023

Shumen

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