CONTRIBUTIONS IN PUBLISHING AND TEACHING ACTIVITY OF ASS. PROF. GABRIELA NIKOLOVA KIROVA PhD,
CANDIDATE IN THE COMPETITION FOR "PROFESSOR" IN **1.3. PEDAGOGY OF EDUCATION IN... (METHODOLOGY OF TEACHING MATHEMATICS IN PRIMARY GRADES),**
ANNOUNCED IN THE STATE GAZETTE, NO. 96 OF 19.11.2021.

Contributions in theoretical and systematic plan

1. A comprehensive informational review has been made in the scientific field of *mathematics education methodology* and analysis of the problems related to: - mathematical thinking of primary school-age pupils and the importance of mathematical education for its development; - theoretical formulations of Bulgarian and foreign scientists on problems related to text problems in mathematical education at primary school age. (Document 10B – Source C3, No. 1)

2. On the basis of the results of the theoretical-systemic research, using the holistic, competence and integrative approach, the author's concept of experimental-research work is developed, the structural components of which are implicitly reflected in the already published scientific works. (Document 10B – sources C3, No. 1; E20, No. 29)

3. A theoretical analysis has been made on the topic of project work in teaching in the 1st to 4th grade (in particular in mathematics), author's projects have been developed and experimentally approbated in real practice. As a result, the content of the university course on the elective subject "*Project work in mathematics education in the 1st to 4th grade"* for the Bachelor and Master degree levels has been updated and enriched. (Document 10C – Sources E20, No. 30; D7, No. 4, No. 7, No. 9, No. 10 and No. 13)

Contributions to experimental research

1. A *model* was created and approbated *for training students* of the specialties for the preparation of primary teachers to work with text problems in mathematics: - methodological development of lecture content; - author's model for the analysis of 859 text problems and creative exercises with text problems for 1st, 2nd, 3rd and 4th grade; - 65 author's schematic models for illustration when working with different types of text problems. The effectiveness of the model in training of 904 students – future primary teachers has been studied and proved. (Document 10B – Source C3, No. 1)

2. On the basis of the observation of mathematics lessons in the 1st to 4th grade the identified issues in the primary teachers work methodology with text problems in mathematics are defined and systematized. (Document 10C – Source D7, No. 12)

3. The methodology of work in teaching to solve text problems in indirect form (in 3rd grade) is developed. On this basis, the content of a university course was updated – a compulsory course "*Didactics of Mathematics – Part I and II*" for the Bachelor's degree and a compulsory course "Di*dactics of Mathematics – Contemporary Trends and Approaches*" for the Master's degree. (Document 10C – Source D7, No. 15)

4. The types of creative exercises on text problems in mathematics in the 1st to 4th grade are classified (supplementing the classification of A. Manova, 1989) and a system for composing and solving text problems by students on numerical data from various sources is developed: tables, newspapers, encyclopaedias, GUINNES book of records, statistical data, price lists, road map of Bulgaria, etc. On this basis, the content of the university course for the elective course "*Creative work on text problems in mathematics in the 1st to 4th grade*" for the Bachelor and Master courses has been updated. (Document 10C – Sources D7, No. 14, No. 15, No. 22, No. 23; E20, No. 29)

5. On the basis of foreign sources, a system and methodology of work with mathematical problems, not typical for the traditional curriculum for the 1st to 4th grade in Bulgaria, has been developed: solving problems with data tables; orientation on a map and solving problems; composing and solving problems with timetables; solving problems with circle diagrams; calculus problems with approximation, problems with Euler-Venn diagrams and Carroll diagrams. (Document 10C – Sources F20, No. 29; D7, No. 16, No. 18, No. 19, No. 20, No. 21, No. 24 and No. 25)

Contributions to the practical-applied field

1. Methodological ideas for the work with text problems, for the illustration in the primary course of mathematics education, for the work on projects, for the introduction of the numbers up to 10, for the introduction of addition and subtraction with the numbers up to 20 with the passing of the decimal point, for the work with text problems in indirect form, for the introduction of the rules for finding the unknown component, for the introduction of the properties of arithmetic operations are implemented in the mass practice. (Document 10B – Sources E20, Nos. 31, 32, 33 and 34; E21, Nos. 35 to 48)

2. Author's comparative content analyses of the new mathematics textbooks for 1st to 4th grades of the different teams and publishers have been made and published, highlighting strengths and weaknesses with respect to the different components of the content. (Document 10C – Sources E20, No. 29; D6, No. 2; D7, No. 3 and No. 8; D9, No. 27 and No. 28)

3. A study has been carried out using an author-constructed instrument and indicators to test mathematical competence at the end of 1st grade under the new curriculum. A detailed analysis of the results on each of the test problems is published and relevant conclusions and recommendations are drawn. (Document 10C – Source D7, No. 6)

4. Analysis and presentation of mathematics teaching kits of Publishing House KLET Bulgaria Ltd – Anubis brand, including: the new components of the curriculum content, the system of illustration through individual didactic materials and a complete methodological analysis of electronic resources for the first grade. (Document 10C – Sources D7, No. 5 and No. 11; D9, No. 26)

10.01.2022 ass.prof. PhD Gabriela Kirova: Gabriela Kirova

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