

## ABSTRACT

The dissertation by Karlygash Zhapsarbaevna Almenbetova titled «Training future primary school teachers to develop students' mathematical abilities» is submitted for the degree of Doctor of Philosophy (PhD) in the field 6D010200 — Pedagogy and Methods of Primary Education.

**Research topic:** Training future primary school teachers to develop students' mathematical abilities

**The purpose** theoretical substantiation and development of a methodology for preparing future primary school teachers for the development of students' mathematical abilities and testing its effectiveness through experimental work.

**The objectives of the research work are:**

- the content of the concepts of "ability", "mathematical abilities" and the theoretical justification of the preparation of future primary school teachers for the development of mathematical abilities of students are determined;
- determination of pedagogical conditions for the development of mathematical abilities of primary school students;
- development of a structural and substantive model for the preparation of future primary school teachers for the development of students' mathematical abilities;
- to prepare a methodology for preparing future primary school teachers for the development of students' mathematical abilities, to test its effectiveness in experimental work, and to develop scientifically sound recommendations.

**Research methods:** - methods of theoretical research: observation, analysis, comparison, structuring, association, interpretation, content analysis, critical analysis, modeling; and methods of empirical research: observation, survey, definition, test, diagnosis, pedagogical experiment, observation, mathematical and statistical analysis, processing the results of experimental research.

**The basic principles recommended for protection are:**

- in defining the scientific and theoretical foundations of the preparation of future primary school teachers for the development of mathematical abilities of students, the content of the concepts of "ability" and "mathematical ability" is analyzed, and it is clarified: "mathematical ability is the speed of mastering mathematical concepts, evidence-based and computational skills, the depth of abstract thinking, as well as the ability to build and analyze mathematical models;
- the methodological foundations of the preparation of future primary school teachers for the development of students' mathematical abilities are the axiological pedestal, activity pedestal, system pedestal, competence pedestal;
- the pedagogical conditions for the preparation of future primary school teachers for the development of students' mathematical abilities have been determined;

- the content of the preparation of future primary school teachers for the development of students' mathematical abilities is understood and recognized on the basis of a content-structural model;

- the effectiveness of the methodology of preparing future primary school teachers for the development of students' mathematical abilities (elective course program, textbook) and the results of experimental work, scientific and methodological recommendations.

#### **Description of the main research results:**

- the meanings of the concepts of "ability" and "mathematical abilities" are defined, the scientific and theoretical foundations of the preparation of future primary school teachers for the development of students' mathematical abilities are determined;

- the pedagogical conditions for the development of mathematical abilities of primary school students have been determined.

- a structural and substantive model has been developed for the preparation of future primary school teachers for the development of students' mathematical abilities;

- a methodological system for preparing future primary school teachers for the development of students' mathematical abilities has been developed and experimentally tested.

#### **Substantiation of the novelty and significance of the results obtained:**

- The content of the concepts of "ability" and "mathematical abilities" are defined, and the theoretical foundations of the preparation of future primary school teachers for the development of students' mathematical abilities are determined;

- The pedagogical conditions for the development of mathematical abilities of primary school students have been determined;

- A structural and substantive model has been prepared for the preparation of future primary school teachers for the development of students' mathematical abilities;

- A methodology has been developed for preparing future primary school teachers for the development of students' mathematical abilities, and its effectiveness has been experimentally tested.

**The practical significance of the research work** is formed by the program of two elective courses "Methods of developing mathematical abilities of students" and "Development of intellectual and creative abilities of primary school students", as well as the textbook "Development of mathematical abilities of primary school students". The methodological package for preparing future primary school teachers for the development of students' mathematical abilities can be used in higher and secondary specialized pedagogical educational institutions, at the Institute for advanced training and retraining of primary school teachers, primary school teachers, as well as students of educational programs of primary education.

**Compliance of research work with the directions of science development or state programs:** the following state regulatory documents on the development of education in our country are considered: the Law of the Republic of Kazakhstan "On Education", the State Mandatory Standard of Higher Education of the

Republic of Kazakhstan (higher professional education), "The State Program for the development of Education and Science in the Republic of Kazakhstan for 2023-2029 years", the Law "On the status of a teacher", in which the main tasks are the development of competitiveness and professional training of future specialists, improving the content of education.

2 elective course programs "Methods of developing mathematical abilities of students" and "Development of intellectual and creative abilities of primary school students", the textbook "Development of mathematical abilities of primary school students" corresponds to the trends in the development of primary education and science.

**Description of the doctoral student's contribution to the preparation of each publication:** the results of the doctoral student's dissertation research were reflected in the publication of 23 scientific papers. Including 1 article in journals included in the Scopus information base; 3 articles in publications from the list recommended by the Committee for Quality Assurance in Science and Higher Education of the Ministry of Education and Science of the Republic of Kazakhstan; 6 articles in the proceedings of the international scientific and practical conference; 6 articles in the materials of the conference of the far and near abroad; 2 articles in the collection materials of the republican conference; 4 articles in scientific journals; 1 textbook.

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