

ANNOTATION

of the dissertation for the degree of Doctor of Philosophy (PhD) in the specialty
6D010900-Mathematics
of Turganbayeva Zhannur Nurtayevna

Research topic: Methodological features of teaching the course of probability theory and mathematical statistics in the conditions of the updated content of school education.

The purpose of the study: development and experimental implementation of a methodology for teaching the theory of probability and elements of mathematical statistics in the basic school in the conditions of the updated content of school education.

Research objectives:

- to identify the historical stages in the formation of the theory of probability and elements of mathematical statistics as a separate branch of mathematical science, to study the world experience in its teaching;
- analyze the content and methodological issues of teaching the theory of probability and elements of mathematical statistics in the regulatory documents of the Ministry of Education and Science of the Republic of Kazakhstan, curricula and textbooks in mathematics to determine the continuity of the content of education;
- to develop methods, means and approaches to the organization of teaching the theory of probability and elements of mathematical statistics in the conditions of the updated content of school education;
- experimentally check the effectiveness of the methodology for the formation of probabilistic - statistical knowledge of students in grades 5-9 and introduce it into the educational process.

Research methods:

- analysis of philosophical, psychological - pedagogical and methodological literature on the topic of research, regulatory documents of the Ministry of Education and Science of the Republic of Kazakhstan, curricula in mathematics, textbooks, teaching aids and teaching aids, the practice of teaching probability theory and mathematical statistics;
- a comparative analysis of the experience of teaching probabilistic and statistical materials in schools of a number of foreign countries, aimed at identifying differences, features and common features in the methods of teaching stochastic materials in different countries;
- experimental verification of the main theoretical provisions and conclusions of the dissertation and processing of their results;
- обсуждение результатов исследований на методических семинарах, научно - практических конференциях.

The main provisions for defense:

- the role and importance of the theory of probability and elements of mathematical statistics in school mathematics, pedagogical and psychological substantiation of the formation of probabilistic - statistical thinking of students;
- methodology for teaching the theory of probability and elements of statistics in basic school based on the principles of continuity and consistency of stochastic material;
- methods, means and approaches to the organization of educational activities of students and the results of the experiment aimed at the formation of probabilistic and statistical knowledge of schoolchildren.

Scientific novelty of the research:

1. The role and significance of the theory of probability and elements of mathematical statistics in the content of the course of mathematics, the stages of historical development, features of the structure and content are determined.
2. The continuity in the teaching of elements of statistics in mathematics of elementary grades and grades 5-9 is determined.
3. Methodology for organizing training in elements of probability theory and statistics on the updated content of education, methods for the formation of probabilistic and statistical knowledge of students in grades 5-9.

Theoretical significance of the study: development of active teaching methods, means and techniques, teaching methods for solving stochastic problems aimed at forming probabilistic and statistical knowledge of schoolchildren based on the principle of succession in teaching mathematics. In addition, the concept of introducing probabilistic-statistical education into the course of school mathematics, aimed at the formation of a statistical culture of students, the concept of probability and a scientific approach, has been proposed and justified.

Practical significance of the study: The theoretical provisions and methodological recommendations formulated in the dissertation on the formation of probabilistic and statistical thinking of schoolchildren and the organization of educational activities can be effectively used by teachers to improve the quality of knowledge, skills and abilities of students in the classroom. The results of the study can be used to improve the content and methodology of teaching stochastics in primary school, as well as in the study of stochastics by students.

Compliance of Science with directions of development or state programs: The main idea of the research meets the requirements aimed at solving the priorities and tasks specified in the Law of the Republic of Kazakhstan "On Education", the strategic development plan of the Republic of Kazakhstan until 2025, the State Program for the Development of Education and Science of the Republic of Kazakhstan for 2020-2025, the national project "Quality Education "Educated Nation", the State Compulsory Standards for all levels of education of the Ministry of Education and Science of the Republic of Kazakhstan and other state regulatory and legal documents regarding the development of the

Kazakhstani education system and improving the quality of training of competitive specialists.

Contribution of the doctoral student to the preparation of each publication (Percentage of the dissertation author, measured as a percentage of the total number of publication):

1. Assessment of Financial Literacy Formation Methods in Mathematics Education: Financial Computation. International Journal of Emerging Technologies in Learning (iJET), 15(16), 49.doi:10.3991/ijet.v15i16.14587 (co-authored by Abylkassymova, A., Mubarakov, A., Yerkisheva, Z., & Baysalov, Z 50 %)

2. Использование информационно-коммуникационных технологий в преподавании элементов статистики в школьной математике// Абай атындағы ҚазҰПУ «Хабаршысы». «Физика-математика ғылымдары» сериясы. – Алматы, 2018. – №1(61). – Б. 279-283. (соавторы: М.Д.Кошанова., 95 %)

3. Орта мектеп бағдарламасына ықтималдықтар теориясы мен математикалық статистиканың енгізілуі// Қазақстанның ғылымы мен өмірі. – Алматы, 2019. – №9/1. – Б. 177-182. (соавторы: М.Д.Кошанова., 90 %)

4. Стохастиканың математикалық білім саласы ретінде тарихи қалыптасуы мен дамуын талдау.// Қазақстанның ғылымы мен өмірі. Білім академиясының баяндамалары.- №9/1, 2019, 177-182 б. (100%)

5. The role mathematical statistics and probability theory in the preparation of future mathematics teachers.//16-я Международная научно-практическая конференция Акмеология Профессионального Образования, РГППУб -Екатеринбург, 2020.- С.164-167 (100%)

6. Вероятностно-статистическое образование в теории и практике обучения математике// XX международная научно-практическая конференция «Eurasia Science». – Москва, 2019. – С. 89-92. (соавторы: М.Д.Кошанова., 95 %)

7. Use of mathematical software for teaching and learning Mathematics// «Математиканың өзекті мәселелері» атты конференциясының материалдары. – Туркестан, 2018. – №1(4). – Б.118-121. (соавторы: М.Д.Кошанова., 95 %)

8. 7-сынып алгебра пәнінде статистика элементтері тақырыбына заманауи ақпараттық коммуникациялық технологияларды қолдану//«Білім салтанатын құрудағы мектеп мұғалімдерінің кәсіби іс-әрекеті» ғылыми-тәжірибелік конференциясының материалдарында. –Шымкент, 2018. – Б. 542-547. (соавторы: М.Д.Кошанова., Аманқұлова И.С. 75 %)