

ANNOTATION

on the dissertation submitted by Assankhanova Zhanna for the degree of Doctor of Philosophy (PhD) in the Educational Programme 8D01201 – “Preschool Education and Upbringing” at Abai Kazakh National Pedagogical University on the topic: “Pedagogical support for the safety of older preschool children in a digital environment”

Research topic: Pedagogical support for the safety of older preschool children in a digital environment.

Purpose of the research: To provide a theoretical and methodological rationale for, and to develop, a methodological framework for the pedagogical support of the safety of older preschool children in a digital environment; to experimentally verify its effectiveness; and to develop methodological recommendations.

Research objectives:

1. To clarify the theoretical and methodological foundations for ensuring the safety of older preschool children in a digital environment.
2. To determine the ecosystem potential of pedagogical support for children's safety in a digital environment.
3. To develop a structural and content model of pedagogical support for the safety of older preschool children in a digital environment.
4. To experimentally verify the effectiveness of the methodology for pedagogical support of the safety of older preschool children in a digital environment through experimental work and to develop methodological recommendations.

Object of the research: The process of developing safety skills in older preschool children.

Research subject: The methodology of pedagogical support for the safety of older preschool children in a digital environment.

Research Methods: To address the research objectives and test the proposed hypothesis, a comprehensive set of theoretical and experimental methods was employed. The study involved a systematic examination of various scientific perspectives and conceptual approaches presented in scholarly works on safety, cyber hygiene, and pedagogical support. The methods of theoretical analysis, synthesis, generalization, content analysis, and modelling were applied.

Theoretical methods: analysis of philosophical, pedagogical, psychological, and methodological studies and scholarly literature; generalization, systematization, comparison, content analysis, pedagogical modelling, structuring, and association.

Empirical methods: questionnaires, observation, testing, analysis of research tasks, self-assessment, as well as mathematical and statistical analysis of the quantitative and qualitative data obtained.

Main Provisions Submitted for Defence (substantiated scientific hypotheses and other statements constituting new knowledge):

1. The process of pedagogical support for the safety of older preschool children in a digital environment is grounded in the systematisation of theoretical and methodological foundations derived from philosophical, psychological, pedagogical,

and socio-pedagogical theories in this field. This made it possible to comprehensively clarify the scientific essence of the research problem.

The study revealed the logical interrelationship among the concepts of “environment,” “digital environment,” “safety,” “safe behaviour,” and “pedagogical support.” It also provided a scientific rationale for considering the activities of older preschool children in a digital space in conjunction with their age-related characteristics, psychological security, social experience, and culture of safe behaviour.

2. The pedagogical potential for ensuring the safety of older preschool children in a digital environment based on an ecosystem approach was identified, and the effective conditions for implementing the pedagogical support process were substantiated.

Safety in a digital environment is regarded as a systematic pedagogical process implemented not through restrictions or excessive control, but through the appropriate organisation of children’s digital experiences, teaching them to recognise potential risks, developing protective patterns of behaviour, and establishing trusting relationships with adults.

The importance of interaction among the child, teacher, parent, digital educational resources, and the educational environment was substantiated. Such interaction enables the effective organisation of pedagogical activities in a preschool organisation through partnership with families, the creation of a safe object-spatial environment, the use of interactive games and situational tasks, and educational and explanatory activities.

3. A structural and content model of pedagogical support for the safety of older preschool children in a digital environment was developed, with its components systematised in accordance with their interrelation and continuity.

The model comprises the target-oriented, methodological, content-related, procedural and technological, and outcome and evaluation blocks. Its content is aimed at developing children’s initial understanding of digital safety, their ability to distinguish between different types of digital threats, acquire safe behaviour strategies, seek timely assistance from an adult in potentially dangerous situations, and demonstrate a culture of caution in a digital environment. The model encompasses an integrated system of pedagogical conditions, methods, tools, and forms of educational activity and serves as a foundation for the purposeful organisation of the process under investigation in preschool educational practice.

4. The content of the methodology for pedagogical support for the safety of older preschool children in a digital environment was scientifically substantiated and developed, and its effectiveness was confirmed through experimental work.

The developed methodology is aimed at improving children’s ability to recognise digital risks, master safe courses of action, demonstrate caution in a digital environment, and apply safe behaviour patterns in everyday situations. Its effectiveness was verified through experimental work, which demonstrated that the proposed system of pedagogical support had a positive impact on the development of children’s digital safety culture. Based on the findings of the study, scientific and methodological

recommendations for implementation in preschool educational organisations were systematised.

The following practical outputs were developed as part of the research: the teaching and methodological manual “Developing Cybersecurity Skills in Preschool Children through Interactive Games”; the educational start-up CyberBalapan; the teaching and methodological manual for preschool teachers “Safe Childhood in a Digital Environment”; the guide for parents “The World Behind the Screen: 10 Steps to Help Protect Your Child.”

The research findings may be used in preschool educational organisations, teacher-training colleges, and higher education institutions.

Characteristics of the main research results: The reliability and validity of the research results are ensured by the internal logic of the study and the consistency between the components of the scientific framework and the content of the dissertation. The systematic development of the theoretical and methodological foundations, together with a comprehensive explanation of the scientific approaches and principles that guided the research, ensured the high quality of the study. The integrated and appropriate application of theoretical and empirical methods in addressing the research objectives enhanced the accuracy of the results obtained.

The validity and reliability of the accumulated scientific data were confirmed through their analysis and cross-comparison at several stages of the research. A comprehensive analysis of the scientific perspectives and concepts proposed by national and international scholars was conducted, on the basis of which the author’s interpretations and definitions related to the research problem were formulated.

The findings of the experimental work were verified using mathematical and statistical data-processing methods. The dynamics of changes in the results obtained at the initial diagnostic and formative stages were identified through comparative analysis. Consequently, the validity of the proposed scientific hypothesis was experimentally confirmed in the course of the study.

Justification of the Novelty and Significance of the Results Obtained in Accordance with the Priority Areas of Scientific Development or State Programmes:

The degree of novelty of each scientific result formulated in the study is presented as follows:

Result 1 is new. The theoretical and methodological foundations of pedagogical support for the safety of older preschool children in a digital environment were clarified from an integrated scientific perspective, and the conceptual framework of the research was established. The essence, content, and interrelationships of the concepts of “environment,” “digital environment,” “safety,” “safe behaviour,” “digital safety,” and “pedagogical support” were scientifically systematised. Digital safety was substantiated as a pedagogical process aimed at developing children’s ability to recognise risks, perform safe actions, and cultivate a culture of caution. The novelty of the result lies in the comprehensive examination of the research problem through personality-oriented, systemic, activity-based, competency-based, socio-pedagogical, and ecosystem approaches. This result enriches the understanding of digital safety within the system of preschool education and upbringing by introducing new scientific

perspectives and further develops the theoretical foundations for fostering a culture of safe behaviour among children. The significance of the result is consistent with the priorities of the state policy of the Republic of Kazakhstan concerning the digitalisation of education, the creation of a safe educational environment, and the protection of children's rights.

Result 2 is new. The ecosystem potential of pedagogical support for the safety of older preschool children in a digital environment has been identified. A child's safety is considered as an integrated pedagogical process implemented through the interaction of the teacher, parents, preschool organisation, digital educational resources, and the educational environment. Based on the ecosystem approach, the pedagogical possibilities for organising a safe digital experience, strengthening partnership between the family and the preschool organisation, and using interactive games and situational tasks have been systematised. The novelty of this result lies in substantiating a child's digital safety not as an isolated activity based on control or restriction, but as a multilevel pedagogical phenomenon that develops in close interaction with the child's social environment. The significance of the result consists in enriching the scientific and methodological foundations for creating a safe digital environment and fostering a culture of safe behaviour in preschool organisations.

Result 3 is new. A structural and content model of pedagogical support for the safety of older preschool children in a digital environment has been developed. The model is based on the interrelationship among the target-oriented, methodological, content-related, procedural and technological, and outcome and evaluation blocks and is aimed at developing children's safe behaviour skills in the digital space. The methodological basis of the model consists of axiological, systemic, activity-based, personality-oriented, integrative, cognitive, innovative, environmental, and socio-pedagogical approaches. Within the model, the motivational and value-based, cognitive and content-related, activity-based and practical, and reflective and evaluative components were identified. The corresponding criteria, indicators, and levels-optimal, sufficient, and insufficient-were specified for each component. The novelty of the result lies in proposing a scientific and methodological framework for the systematic support of children's safety through the integration of the efforts of teachers and parents and the developmental potential of the educational environment.

Result 4 is new. A methodology for pedagogical support for the safety of older preschool children in a digital environment was developed, and its effectiveness was empirically verified through experimental work. As part of the research, the following methodological products were developed and implemented in educational practice: the teaching and methodological manual "Developing Cybersecurity Skills in Preschool Children through Interactive Games"; the educational start-up CyberBalapan; the teaching and methodological manual for preschool teachers "Safe Childhood in a Digital Environment"; and the parental guide "The World Behind the Screen: 10 Steps to Help Protect Your Child."

The experimental findings revealed positive changes in the development of children's abilities to recognise digital risks and demonstrate safe behaviour. The effectiveness of the methodology was confirmed through statistical and qualitative analyses of the results obtained. The significance of this result lies in the

systematisation of practical recommendations and the enhancement of the methodological foundations for creating a safe digital environment in preschool educational organisations.

Compliance with the directions of science development or state programs :

The dissertation research was conducted in accordance with the priority areas of the state policy aimed at developing the education system of the Republic of Kazakhstan and the current regulatory and legal framework. In particular, the following documents and strategic priorities served as guiding frameworks for the research: the objectives for modernising the education and upbringing sector outlined in the address delivered by President Kassym-Jomart Tokayev at the fifth meeting of the National Kurultai; the Laws of the Republic of Kazakhstan “On Education” and “On the Rights of the Child”; the United Nations Convention on the Rights of the Child; the Law of the Republic of Kazakhstan “On the Protection of Children from Information Harmful to Their Health and Development”; the State Compulsory Standard for Preschool Education and Training; the Model for the Development of Preschool Education and Training; the Standard Curriculum for Preschool Education and Training and the relevant guidelines for its implementation; the Concept for the Development of Preschool, Secondary, Technical and Vocational Education in the Republic of Kazakhstan for 2023-2029; the Cybersecurity Concept (“Cyber Shield of Kazakhstan”); the Concept for Digital Transformation, Development of the Information and Communication Technology Sector and Cybersecurity for 2023-2029; the Unified Educational Programme “Adal Azamat”; and Resolution No. 56 of the Government of the Republic of Kazakhstan dated January 29, 2026, “On Approval of the ‘Children of Kazakhstan’ Concept for 2026-2030.”

Contribution of the PhD student to each publication (indicating the percentage share of the dissertation author in the total volume of the publication)

: A total of eleven scholarly works have been published on the topic of the dissertation, including three teaching and methodological manual and one article in an international peer-reviewed journal indexed in the Scopus database (Q2; CiteScore percentile – 52). Of these publications, three articles were published in journals recommended by the Committee for Quality Assurance in Science and Higher Education of the Ministry of Science and Higher Education of the Republic of Kazakhstan; two papers were published in the proceedings of international scientific and practical conferences held in the Republic of Kazakhstan; and two papers were published in the proceedings of international scientific and practical conferences held in neighbouring and other foreign countries.

1. Pre-service early childhood educators’ attitudes toward supporting digital safety of preschool children. International Journal of Evaluation and Research in Education (IJERE), Vol. 15, No. 3, June 2026, pp. 2449–2458. ISSN: 2252-8822. DOI: 10.11591/ijere.v15i3.38841. Percentile – 52%. The article examines the attitudes of pre-service early childhood educators toward supporting the digital safety of preschool children, their level of preparedness, and the possibilities of providing pedagogical support. The contribution of the doctoral student is 75%. (Co-authors: Bulshekbayeva A., Kyyakbayeva U., Akhataeva K., Atemkulova N.).

2. Мектеп жасына дейінгі ересек балалардың кибермәдениетін дамытудың педагогикалық аспектілері. Bulletin of Abai KazNPU. Series of Pedagogical Sciences, Vol. 84, No. 4, 2024, pp. 378-390. DOI: <https://doi.org/10.51889/2959-5762.2024.84.4.034>. The article examines the importance of digital safety, the appropriate perception of information flows, and the pedagogical support provided by parents and preschool teachers in developing cyberculture among older preschool children. The contribution of the doctoral student is 70%. (Co-authors: Bulshekbayeva A.I., Onlanbekkyzy G.).

3. Интерактивті ойындар арқылы балалардың кибергигиена және қауіпсіздік мәдениетін қалыптастыру. Bulletin of Abai KazNPU. Series of Pedagogical Sciences, Vol. 88, No. 4, 2025, pp. 399–412. DOI: <https://doi.org/10.51889/2959-5762.2025.88.4.035>. The article presents the scientific and pedagogical foundations for developing cyberhygiene and a culture of digital safety among preschool children through interactive games. The contribution of the doctoral student is 90%. (Co-author: Bulshekbayeva A.I.).

4. Game-based technologies for developing cyber hygiene and safe behavior skills in senior preschool children. Қазақстанның педагогикалық хабаршысы. 83, 2 (2026) 66–87. DOI: <https://doi.org/10.52301/1991-0614-2026-2-66-8>. The article examines the scientific and pedagogical foundations and practical effectiveness of using game-based technologies to develop cyber hygiene and safe behavior skills in older preschool children. The contribution of the doctoral student is – 80% (Co-author: Bulshekbayeva A.I., A. Ural).

5. Pedagogical Frameworks for Ensuring Cybersecurity in Early Childhood Education. Proceedings of the 7th International Congress on Social Sciences (USOBAC), organised by Gazi University and Ankara Hacı Bayram Veli University, May 6-7, 2025. Ankara, Türkiye, 2025, pp. 90–97. ISBN: 978-605-82037-9-2. The article examines pedagogical approaches and methodological foundations aimed at ensuring children's cybersecurity in early childhood education. The contribution of the doctoral student is 90%. (Co-authors: Bulshekbayeva A.I., Ural A.).

6. Мектеп жасына дейінгі балалардың киберқауіпсіздігін педагогикалық сүйемелдеудің ерекшеліктері. In the World of Science and Education: International Scientific and Practical Journal. Almaty, Kazakhstan, December 15, 2024, pp. 41-44. DOI: 10.24412/3007-8946-2024-151-41-44. ISSN: 3007-8946. The article highlights the importance of pedagogical support for the cybersecurity of preschool children and examines the specific features of its organisation in early childhood education practice. The contribution of the doctoral student is 90%. (Co-author: Bulshekbayeva A.I.).

7. Ақпараттық қоғамдағы мектеп жасына дейінгі баланың кибермәдениеті мен қауіпсіздігі. Proceedings of the International Networking Conference “Tuning in Education: Global Trends and Developments at the Intersection of Didactics, Psychodidactics, Sociodidactics, Cyberdidactics, and Neurodidactics,” dedicated to the 95th anniversary of Talgat Sabyrzhanyuly Sabyrov, scholar in the field of didactics, Doctor of Pedagogical Sciences and Professor. April 12, 2024, pp. 133-136. ISBN: 978-601-353-269-1. The article examines the development of cyberculture among preschool children in the information society and the formation of their safe behaviour

in a digital environment. The contribution of the doctoral student is 90%. (Co-author: Bulshekbayeva A.I.).

8. Мектепке дейінгі жастағы балалардың ойын әрекеті арқылы киберқауіпсіздік дағдыларын қалыптастыру. Proceedings of the International Scientific Forum “*Modern Preschool Education: Experience and Prospects*,” dedicated to the 70th anniversary of Mankesh Aksaule Yerzhenbaikyzy, Doctor of Pedagogical Sciences and Professor. April 11, 2025, pp. 105–108. ISBN: 978-601-353-356-8. The article examines the pedagogical potential of developing cybersecurity skills in preschool children through play-based activities. The contribution of the doctoral student is 100%.

9. Мектеп жасына дейінгі балалардың киберқауіпсіздік дағдыларын интерактивті ойындар арқылы дамыту: оқу-әдістемелік құрал. Approved and recommended for publication by the decision of the Academic Council of the Faculty of Pedagogy and Psychology of Abai KazNPU dated December 28, 2025 (Minutes No. 4). Almaty: Qazaq university Publishing House, 2026. 164 p. ISBN: 978-601-04-7411-6. The teaching and methodological manual presents the content, methodological approaches, and practical tasks designed to develop cybersecurity skills in preschool children through interactive games. The contribution of the doctoral student is 90%. (Co-author: Bulshekbayeva A.I.).

10. Цифрлық ортадағы қауіпсіз балалық шақ: мектепке дейінгі ұйым педагогтеріне арналған оқу-әдістемелік құрал. Approved for publication by Protocol No. 8 dated March 30, 2026, of the Department of Preschool Education and Social Pedagogy of Abai Kazakh National Pedagogical University. Qazaq university Publishing House, 2026 – 272 p. ISBN 978-601-04-7600-4. The teaching and methodological guide systematizes pedagogical approaches, methods, and practical recommendations aimed at ensuring the safety of preschool children in the digital environment. The contribution of the doctoral student is – 90% (Co-author: Bulshekbayeva A.I.).

11. Экран артындағы әлем: балаңызды қорғауға көмектесетін 10 қадам: ата-аналарға арналған нұсқаулық. Approved for publication by Protocol No. 10 dated May 29, 2026, of the Department of Preschool Education and Social Pedagogy of Abai Kazakh National Pedagogical University. Qazaq university Publishing House, 2026 – 164 p. ISBN 978-601-04-7632-5. The guide for parents presents 10 practical steps aimed at ensuring the safety of preschool children in the digital environment, promoting the rational organization of screen time, and protecting them from potential online risks. The contribution of the doctoral student is – 90% (Co-author: Bulshekbayeva A.I.).