

Transforming Didactic Methods: A New Vision for Kazakhstan's Primary Education System

Aizhan Khassenova

<https://orcid.org/0009-0004-5785-1663>

Kyrgyz National University Named after
Jusup Balasagyn, Kyrgyz Republic
khassenova_ai@outlook.com

Lyazat Syzdykova

<https://orcid.org/0009-0008-2834-6368>

Kyrgyz National University Named after
Jusup Balasagyn, Kyrgyz Republic
lyazatsyzdykova@hotmail.com

Gulnaz Adylbek kyzy

<https://orcid.org/0009-0007-5088-7665>

Kyrgyz National University Named after
Jusup Balasagyn, Kyrgyz Republic
guln_adylbek@outlook.com

Gulmira Karabalaeva

(corresponding author)

<https://orcid.org/0000-0003-0389-0769>

Kyrgyz National University Named after
Jusup Balasagyn, Kyrgyz Republic
mira.karabalaev@gmail.com

Abstract

This study examines the current state of primary education in Kazakhstan, where traditional teaching methods may be insufficient for comprehensive student development. The purpose is to develop proposals for improving the educational system of primary schools in the Republic of Kazakhstan. The study employs a mixed-methods approach combining systematic analysis, deduction, classification, and comparison methods, along with a survey of 71 participants (12 teachers, 26 parents, and 33 students) to evaluate Kazakhstan's primary education system, with data synthesis used to formulate recommendations for improving educational didactics. The results reveal that while the education system has strengths in providing comprehensive subject coverage and clear learning outcomes, it faces challenges such as insufficient attention to individual student needs, limited integration of information and communication technologies, and gaps in critical thinking development. The survey findings indicate generally positive perceptions of the educational environment, though with varying levels of satisfaction among different stakeholder groups. The study concludes that structural changes are needed in Kazakhstan's primary

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education system, particularly in integrating modern pedagogical approaches and technologies.

Keywords: educational didactics; pedagogical approaches; didactic theories; Kazakhstan education system; information and communication technologies; STEM education

Introduction

Updating didactics in primary education is extremely important, as it aims to adapt the educational process to modern challenges and society's requirements. With the rapid development of technology, the changing socio-cultural environment, and the growing diversity of students, the need for effective educational methods is becoming essential (Tsiuniak 2020). The updated didactics promote more flexible and individualised learning, develop critical thinking, and provide students with the skills necessary for successful adaptation in modern society.

The problem of the study is that the old teaching methods may be outdated and unable to fully consider technological progress, cultural diversity, and the individual needs and abilities of students. In this regard, it is important to consider which changes in educational strategies can best prepare children for a modern dynamic environment, contributing to their successful adaptation and development of key competencies (Machynska 2018). The problem of updating didactics in primary education is relevant in many countries, including Kazakhstan, and has become more pronounced in recent decades. In Kazakhstan, there is a desire to adapt educational methods to modern challenges (Republic of Kazakhstan 2023), including the development of new approaches to learning, the integration of modern technologies, and considering the needs of diverse groups of students. However, despite some efforts in this direction, there are obstacles such as insufficient teacher training, heterogeneity in access to modern educational resources, and the need for more systematic innovation in the educational process (Kambatyrova, Assylbekova, and Goodman 2022).

A study by Karimova et al. (2023) examines various methods of digital transformation of educational content in Kazakhstan, including the use of multimedia materials, online platforms, and educational applications. The researchers conclude that digital tools and resources can substantially enrich the learning process, making it more interactive, attractive, and adaptive to the level and needs of each student. A study by Ibrayeva and Shaushekova (2022) analyses the problems of insufficient interest in Science, Technology, Engineering, and Mathematics (STEM) among primary school students in Kazakhstan. The authors determine that insufficient motivation to study STEM subjects can lead to the loss of substantial opportunities for future professional and personal development and stress that successfully solving this problem requires an integrated approach and joint efforts on the part of educational institutions, government, parents, and the community as a whole.

Sardor and Nafosat (2023) examine various types of didactic games used in the educational process, and establish that their use contributes to deeper learning, increased motivation of students, and the formation of a positive attitude to learning. The researchers prove that game methods allow children to learn more effectively, as they provide an opportunity to learn through experience and practical application of knowledge. Khabibullayeva (2021) focuses on the analysis of the methodological training of future primary school teachers. The author justifies the importance of developing effective teaching methods adapted to the level and characteristics of students, and concludes that teachers need to actively develop their methodological skills and strive for constant professional growth to effectively teach the subject of education in primary school. The role of integration in the educational process of primary schools is identified in the study by Babanazarovich (2021). The researcher concludes that integration allows combining various subject areas into a single whole, which contributes to students' deeper understanding of the material and the development of their creative abilities. The introduction of integration into primary education lessons is called an important step towards creating a more flexible and adaptive educational environment.

The reviewed studies provide valuable information about the current state of primary education in Kazakhstan and suggest ways to improve its individual components, but the primary education system as a whole was not examined. The research problem is the inadequacy of traditional teaching methods in addressing the technological progress, cultural diversity, and individual needs of students in Kazakhstan. In this regard, the purpose of this study is to develop proposals for improving the educational system of primary schools in the Republic of Kazakhstan.

Materials and Methods

The systematic approach allowed us to consider in detail the educational system of primary education in Kazakhstan. With the help of this scientific approach, didactic theories, learning strategies, and the primary education system were examined from the standpoint of complex relationships, where each element affects the overall result. The examination of didactic theories with a systemic approach allowed us to identify the theoretical foundations and approaches used in the educational system of Kazakhstan. The application of a systematic approach to the educational system also helped to identify internal relationships and to describe the influence of external factors, such as socio-cultural characteristics and current trends in education. Within the framework of the considered system, didactic theories were identified as key elements forming the methodological foundation of the educational system.

Using the analysis method, the strengths and weaknesses of the educational system were identified, and the use of the deduction method allowed us to determine that the primary education system in Kazakhstan is based on traditional approaches, paying attention to the basics of native and foreign languages, mathematics, natural sciences, social sciences, art, and physical culture. The classification method was used to structure the

data. The use of the comparison method allowed us to compare the structures of academic subjects, teaching methods, and changes in educational standards. This method allowed us to identify those aspects that require additional attention and correction. A survey was conducted during the study. The sample consisted of 71 people, among whom were 12 primary school teachers, all of whom were women, the average age of whom was 43.8 years; 26 parents of primary school students, of whom 17 were women, 9 were men, and the average age of whom was 32.1 years; and 33 primary school students, of whom 15 were girls, and 18 were boys, and the average age of the children was 7.6 years. Each group of respondents was asked questions according to the categories below. The respondents had to give an assessment according to the proposed statements but also had the opportunity to give an extended answer and provide their own thoughts and suggestions regarding the educational process. Questions for primary school teachers:

1. What is your level of satisfaction with the current education system in the lower grades (1 = very dissatisfied, 5 = very satisfied)?
2. How often do you use modern educational technologies in your practice (1 = rarely, 5 = constantly)?
3. Evaluate the effectiveness of implementing additional pedagogical techniques to support a variety of learning styles (1 = ineffective, 5 = very effective).

Questions for parents of elementary school students:

1. How satisfied are you with your child's current educational environment (1 = very dissatisfied, 5 = very satisfied)?
2. How would you assess the need for changes in your child's primary school curriculum (1 = drastic changes are needed, 5 = everything is fine)?
3. Evaluate the impact of modern technology on your child's education (1 = negative impact, 5 = positive impact).

Questions for elementary school students:

1. How much do you like studying at school (1 = do not like it at all, 5 = really like it)?
2. How difficult do some lessons seem to you (1 = all are very difficult, 5 = all lessons are very easy)?
3. If you could choose what you would like to learn or how you would like to study at school (1 = would prefer not to study at all, 5 = would be very interested).

Using the synthesis method, the information obtained during the study was combined, which allowed the formulation of specific recommendations for improving the didactics of primary education.

Results

The update of didactics is an integral process, which is conditioned by the need to adapt educational practices to the dynamically changing requirements of modern society. In this context, adaptation and individualisation become key concepts. Adaptation implies making changes to the education system. It requires flexibility in responding to new challenges. The system must be able to integrate innovations effectively. Most importantly, it needs to respond meaningfully to students' evolving needs (Serpa-Andrade, Pinos-Velez, and Rivera-Calle 2021). Individualisation, in turn, means moving from universal approaches to considering the unique characteristics of each student. This is important because learning tailored to individual needs contributes to more effective learning and the development of learning skills (Willert and Eriksson 2023).

In the context of didactic renewal, the concept of innovation also becomes essential. It brings innovative methods, technologies, and pedagogical approaches to the educational process. Innovations are aimed at creating a stimulating, interactive educational environment that promotes active student engagement and enriching learning experiences (Rivera et al. 2021). In this context, it is also important to highlight a competence-based approach that emphasises the need to develop not only factual knowledge but also skills that can be successfully applied in real-life situations. Competencies include critical thinking, communication skills, problem-solving, and creative thinking—key aspects that ensure graduates are prepared for the complexities of modern society. The flexibility of didactics is another important aspect that ensures the successful updating of educational practices. Flexibility involves adapting to new methods and considering students' diverse learning styles and needs (Poroçani and Zaçellari 2022). All these concepts are interrelated and together form the basis for the successful renewal of didactics, providing effective education and preparing students for the challenges of the modern world.

Existing research in the field of didactics and primary education reveals a rich landscape of theories and concepts covering diverse aspects of learning. Classical approaches, represented, for example, by the theory of John Amos Comenius (Lee and Hong 2021), emphasise the importance of understanding the individual needs of students and their active involvement in the learning process. The examination of the theories by Lev Vygotsky (Blunden 2021) raises the question of the socio-cultural context of learning and the importance of students interacting with each other and with teachers. Classical theories in didactics stand out for their bias towards understanding the pedagogical process through the prism of students' interaction with the educational environment. Modern concepts such as the competence approach (Lorente-Echeverría, Canales-Lacruz, and Murillo-Pardo 2022) seek to develop not only knowledge but also skills

necessary for successful adaptation in a dynamic society. This approach emphasises the development of skills such as critical thinking, communication skills, problem-solving, and creative thinking. Theories of learning through play, inspired by the works of Maira Montessori (Frierson 2022), emphasise the role of game methods in stimulating creative thinking and motor development in children. This approach focuses on creating a structured environment where children can freely choose the type of activity, developing their knowledge, and creativity in the process. Such theoretical perspectives open up opportunities for the creation of updated didactic approaches that consider modern educational requirements.

In primary schools in Kazakhstan, the educational process is organised in accordance with state standards, and includes the following subjects: Mathematics, Digital Literacy, Natural Science, Knowledge of the World, Technology and Art, Physical Education, Fundamentals of Life Safety, and Traffic Rules. The purpose of primary education is to create an educational space for the harmonious development of students' personality, including the development of knowledge, critical thinking, research skills and work with information and communication technologies (ICT), and the development of language and communication skills. In 2022–2023, changes were made, including the division of Technology and Art into Labour Training and Fine Arts and the introduction of the course Mathematics and Logic with an emphasis on the development of mathematical literacy and speech (Republic of Kazakhstan 2022).

Modern changes in primary education in Kazakhstan include the division of the subject Technology and Art into Labour Training and Fine Arts, reflecting the desire for a more differentiated formation of students' labour and creative skills. In the new educational order dated 1 February 2024, substantial changes were made to the standard of primary education aimed at improving the quality of education and upbringing and adapting to the modern requirements of society. The purpose of primary education in the new standard is to create an educational space that promotes the harmonious formation of the student's personality and the development of skills such as functional and creative application of knowledge, critical thinking, and working with technology. The content of primary education is focused on learning outcomes, considering the modern demands of society, and developing critical, creative, and positive thinking (Republic of Kazakhstan 2022). These changes in the standard are designed not only to meet modern educational requirements but also to promote the formation of responsible citizens who are ready for creative thinking and cooperation in society. The content parts and expected results of school subjects are presented in Table 1.

Table 1: The content and expected results of teaching primary school subjects in Kazakhstan

Subject	The content part of the training	Expected learning outcomes
Kazakh/Russian/native language Literary reading	grammar, vocabulary, punctuation; reading and writing; text analysis	knowledge of the rules of language, spelling, grammar; active and passive vocabulary; fluency in the native language in various situations; understanding and analysis of literary texts; the development of critical thinking; evaluation and interpretation of literary works
Mathematics	arithmetic (fundamentals of algebra); geometry	ability to solve mathematical problems; knowledge of basic arithmetic operations; understanding mathematical concepts and methods; working with geometric shapes and forms; solving problems for determining volumes and areas; the development of spatial thinking
Natural Science	knowledge about nature and natural science; research methods in natural science; assessment and synthesis of natural knowledge	knowledge about the planets of the solar system, the basics of physics, chemistry, biology; understanding the importance of preserving biodiversity and caring for the environment; application of research methods for the study of natural objects; analysis of causal relationships in nature; assessment of the factors of nature development and the impact of scientific and technological progress

Humans and Society	family and society; identity and duties of a citizen; methods of cognition of social processes	knowledge of the structure and functions of the family and society; understanding the role of a citizen and the values of society; awareness of your civic identity; knowledge of the rights and duties of a citizen; the use of cognitive methods for the examination of social phenomena; knowledge of universal human values and rules of positive communication
Technology and Art	art and decorative work; musical literacy and music; technologies and creative projects	knowledge of the basics and types of art; the use of various techniques in art; analysis of works by world and domestic artists; the basics of musical literacy; understanding the connection of music with other forms of art; knowledge of national traditions and customs in music; the use of various materials and techniques in creative works; synthesising knowledge and skills to carry out creative projects
Physical Culture	physical exercises and safety rules; the importance of physical culture in human life; independent and collaborative physical work	knowledge of basic physical exercises and their techniques; knowledge of safety rules during physical education; assessment of the importance of physical education for health; understanding the role of sport in the formation of pride in the country; applying skills for independent and collaborative physical work; assessment of individual abilities and participation in sports events

Source: compiled by the authors based on Order of the Minister of Education of the Republic of Kazakhstan No. 348 titled “On the Approval of State Compulsory Standards for Preschool Education and Training, Primary, Basic Secondary and General Secondary, Technical and Vocational and Post-Secondary Education” (Republic of Kazakhstan 2022).

The education system in Kazakhstan has several strengths. First, it offers a variety of subjects covering various educational fields such as language and literature, mathematics, natural sciences, society, technology and art, and physical education, which ensures the comprehensive development of students and gives them the opportunity to choose their strengths. The system clearly defines the expected learning

outcomes for each educational area and subject. This approach helps to standardise the educational process and provides clear goals for students, teachers, and parents. The introduction of physical culture into the primary school educational programme demonstrates to students the importance of physical health and an active lifestyle, contributing to physical development and the general well-being of students. The system also pays attention to Kazakhstan's national traditions, history, and culture, contributing to the formation of civic identity and pride in the country.

Nevertheless, the real education system also has its weaknesses. While standardisation is useful for ensuring the quality of education, it can lead to the neglect of individual student needs. The grading and examination system can cause high levels of stress. Insufficient attention is paid to the development of critical thinking and problem-solving, and some aspects of the curriculum may be too theoretical, and do not provide sufficient interaction with real challenges. The insufficient development of the ICT sector in the educational system is also noticeable. The educational experience is not always fully enriched through the use of modern technologies due to limited access to them. This reduces the opportunities for students to gain diverse knowledge and effectively develop digital skills since some educational institutions and teachers do not always have sufficient competence and resources to fully use ICT in teaching (Ostrovskaya 2022). The successful implementation of the modern educational process also requires constant updating of personnel and methods.

The survey conducted among various educational participants was designed to identify their opinions and suggestions regarding the current state of primary education in the Republic of Kazakhstan. As a result, diverse answers were received, reflecting the specifics of the perception of education by different groups of participants.

Primary School Teachers

During the survey of primary school teachers, relevant indicators of their perception of the educational environment were identified. On average, the level of satisfaction with the education system was assessed as relatively high—3.8 points out of a possible 5, and the majority of teachers (7 out of 12) expressed satisfaction with a score of 4 or higher, which indicates a fairly positive overall perception of the current educational system. Teachers rated the use of modern technology at 3.7 points on average, which indicates a moderate use of technology in the educational process. However, some teachers rated this aspect extremely positively, which may indicate a difference in access to modern technology in different schools and even classes within the same educational institutions. Teachers' ratings of the effectiveness of additional techniques averaged 4 points, indicating that teachers generally consider additional techniques to be quite effective in supporting a variety of student learning styles (Figure 1).

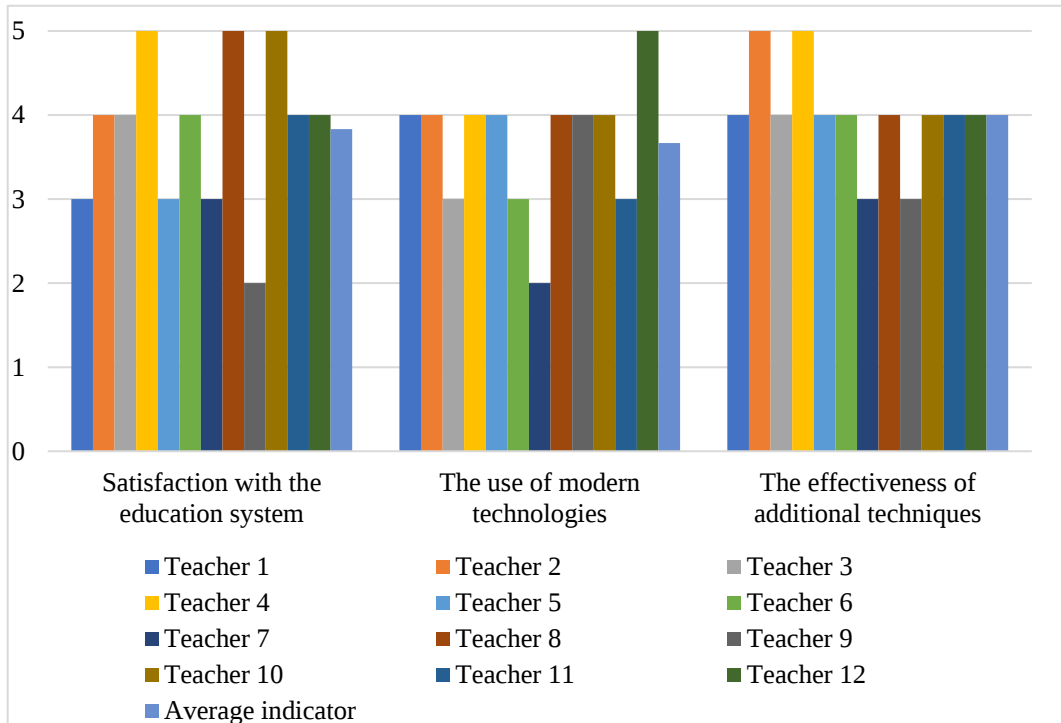


Figure 1: Numerical indicators of the survey of primary school teachers

Open responses from teachers included suggestions for additional training programmes to enhance the teaching of specific subjects, particularly Mathematics. One of the teachers interviewed expressed the opinion that the education system provides a good basic level, but additional funds are needed for more interesting learning. Another teacher stressed the importance of modern technology, as it is a great tool, but sometimes teachers do not have enough specialised programmes for teaching Mathematics. An opinion was also expressed on additional techniques, as they really help to diversify learning, especially when working with children with difficulties. Thus, primary school teachers generally positively assessed the existing educational system. They also actively use technology and recognise the importance of additional techniques for successful learning.

Parents of Elementary School Students

The average indicator of satisfaction with the educational environment among mothers was 3.2 points. In qualitative terms, the score of 3.2 points for satisfaction with the educational environment is contextualised as indicating a moderately positive evaluation, though not overly enthusiastic. On a scale where 1 is the lowest and 5 is the highest, a score of 3.2 is slightly above the neutral midpoint of 3, suggesting a general sense of satisfaction among the majority of respondents, but also reflecting some reservations. Of these, the majority (12 out of 17) rated satisfaction with the educational environment within 3–4 points. Nevertheless, there is a diversity in assessments, which

may indicate a subjective perception of the quality of education. The question of the need for changes in the curriculum received an average score of 3.4 among mothers. The women surveyed felt that the existing curriculum needs some changes, while the level of necessary changes may vary depending on individual preferences. The average score for the impact of modern technology on a child's education was 2.9, which may indicate that mothers generally do not find the impact of technology on their children's education positive. This situation may have developed due to problems with the irrational use of technology by a child at home or due to limited integration of technology into the educational process (Figure 2).

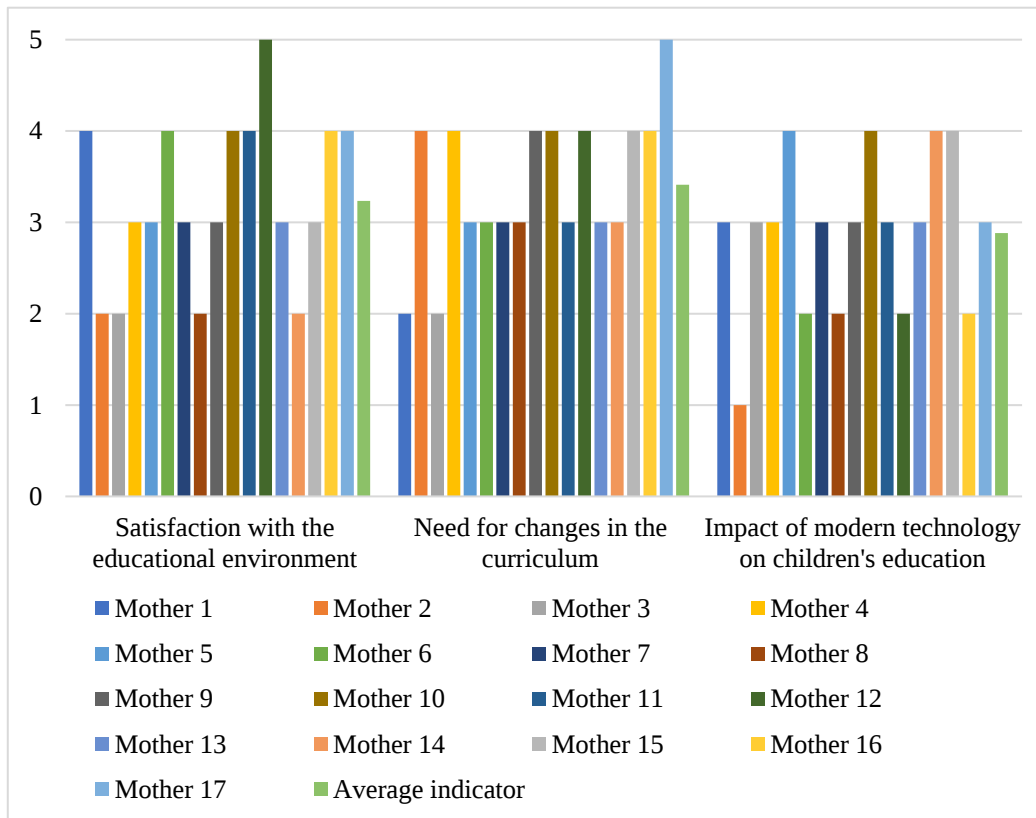


Figure 2: Numerical indicators of the survey of primary school students' mothers

Fathers generally rated their satisfaction with the educational environment at an "above average" level of 3.9 points, which indicates that the majority of fathers who participated in the survey are satisfied with the overall educational atmosphere. The need for changes in the curriculum (average score 3.2) was also rated above average. This may indicate that fathers are aware that the educational programme for their children needs improvement. Fathers estimated the impact of modern technology on

children's education at an average of 3.1 points, which indicates some doubts or a limited view of technology's effectiveness in the educational process (Figure 3).

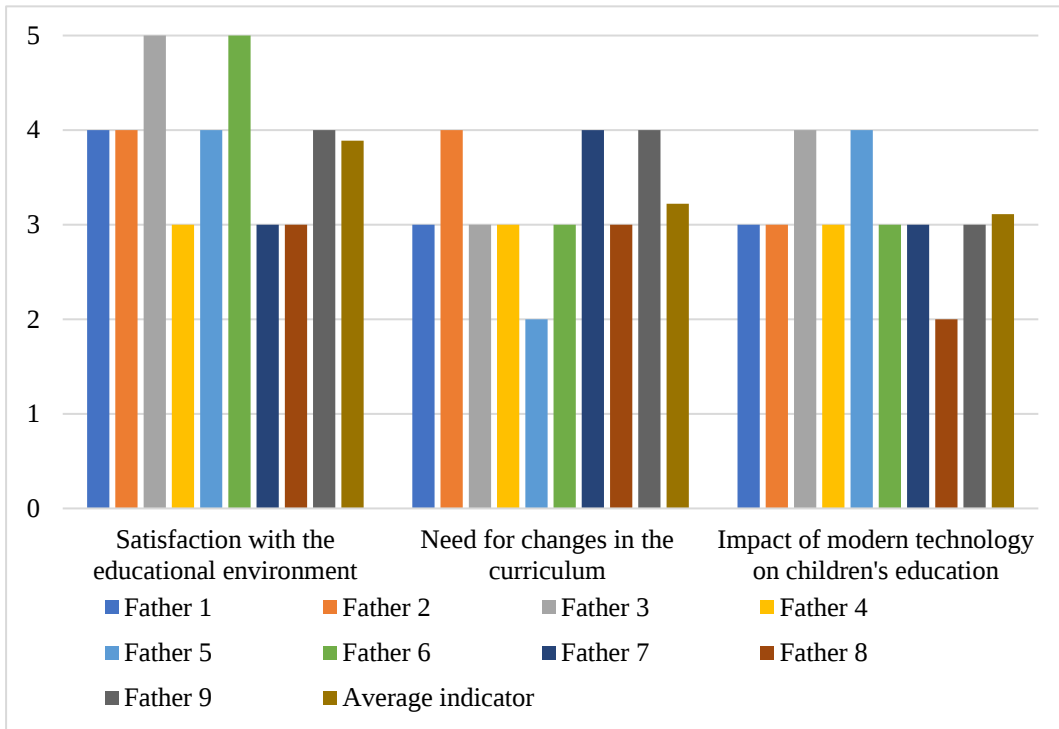


Figure 3: Numerical indicators of the survey of fathers of primary school students

Analysing the fathers' survey data, it can be noted that, in general, their level of satisfaction with the educational environment and the need for changes in the curriculum are estimated to be, on average, higher than the impact of modern technologies on children's education. This may indicate that fathers are more satisfied with the overall educational atmosphere but recognise that the curriculum can be improved and changed. Judging by the answers, the impact of modern technologies on the education of their children is estimated somewhat lower, which may indicate that fathers generally see a limited contribution of technology to the educational process or have certain doubts about its effectiveness. In comparison with the answers of mothers, the question of satisfaction with the educational environment has similar average scores for both groups of parents, which indicates that both fathers and mothers are mostly satisfied with the educational environment, although the level of satisfaction among fathers turned out to be slightly higher. The issue of the need for changes in the curriculum also shows similar results in both groups, but mothers, on average, rate the need for these changes slightly higher. When it comes to the impact of modern technology on education, fathers tend to view it more positively than mothers. This suggests that fathers may have a more optimistic outlook on the role of technology in the educational process.

The variability of responses may be due to the individual experiences of families, differences in the perception of the educational environment, and preferences in learning approaches. Some parents may evaluate the educational environment based on their child's personal experience, which may affect the diversity of responses. Differences in estimates of technology's impact may be due to parents' insufficient awareness of its use. In general, the results reflected the diversity of parents' perceptions of the educational environment and emphasised the importance of considering families' individual needs when forming educational policies and changing curricula.

Socio-economic Status of Parents and Children and Problem Areas of Primary Education Policy in the Republic

The socio-economic status of parents is an important factor affecting the quality of children's education. In the Republic, there is a direct correlation between the socio-economic status of a family and the level of educational achievement of children. Parents with higher incomes have more opportunities to provide additional educational resources, such as tutors, courses, and other learning materials. They can also provide their children with better learning environments, including access to high-quality preschools and schools. Families with lower socio-economic status, on the other hand, often face numerous challenges (Lomachinskyi 2023). Children from such families may have limited access to quality education, fewer opportunities to participate in extracurricular activities, and as a result, may fall behind their peers in their studies. Low income can also negatively affect children's health and ability to learn due to malnutrition, limited access to health care, and other socio-economic issues (Lebid 2023).

There are several problem areas in the Republic's primary education policy that require special attention. One of the main problems is unequal access to quality educational services. Differences between urban and rural areas, as well as between different socio-economic groups, mean that children from less affluent families and from remote regions have limited access to quality education. This may include insufficient teaching materials, limited access to modern technology, and inadequate funding for schools. Another important problem is the lack of funding for education. Schools in less affluent areas often face budgetary constraints that prevent them from providing the required level of education. This can manifest in low teacher salaries, limited opportunities for professional development, and inadequate material and technical support. Teachers in such conditions may be less motivated and have fewer opportunities for quality instruction, which negatively affect student outcomes (Lomachynsky 2023).

There is a problem of insufficient integration of social services with the educational system. Many children from socially vulnerable categories, such as children from low-income families or with special needs, do not always receive the necessary support from social services. This can lead to problems with social adaptation, emotional and behavioural difficulties, which in turn negatively affect their learning and overall

development. One of the problems is the lack of effective mechanisms for monitoring and evaluating the quality of education. The lack of systematic data and insufficient attention to learning outcomes assessment can hinder the identification of problems and the implementation of necessary changes in education policy (Zlenko et al. 2023). Without adequate evaluation and monitoring, it is difficult to determine which measures are effective and where additional efforts are needed to improve the situation. Addressing these challenges requires a comprehensive approach that includes both education policy reforms and socio-economic initiatives aimed at reducing inequalities and improving the quality of education for all children, regardless of their socio-economic status.

Elementary School Students

First-grade students generally rated their satisfaction with the educational process highly (the average score is 4 points). This indicator may be due to the novelty of learning, the active involvement of teachers, and interesting teaching methods for schoolchildren. The perception of the level of complexity of the lessons is also high, which may be due to adaptation to new knowledge and skills. The first-grade students noted with great interest the desire to choose subjects for study, which may be due to the novelty of the learning environment. The second graders rated the level of satisfaction with the educational process as average, which can be associated with adaptation and learning experience in the first grade. The perception of the level of complexity of lessons has increased compared to the first grade, which may be due to an increase in the complexity of the material being studied. The second graders retained a high interest in the choice of subjects, which may indicate a desire to participate in the formation of the curriculum.

Third graders' satisfaction with the educational process remained at an average level, which may be due to an increase in the complexity of the material and requirements. The perception of the complexity of the lessons also did not change compared to the surveyed second graders, which may be the result of the transition to more complex topics and tasks. The desire to choose subjects remained above average, which may indicate a continuing interest in the individualisation of the educational process. The survey of fourth-grade students demonstrated that their level of satisfaction with the educational process remained at the level of the second and third grades, which may be due to adaptation to the requirements of older grades. The perception of the complexity of lessons has returned to the level of grade 1, which may indicate stability in overcoming learning difficulties. The desire to choose subjects remained, which emphasises the interest of students in individualising learning (Figure 4).

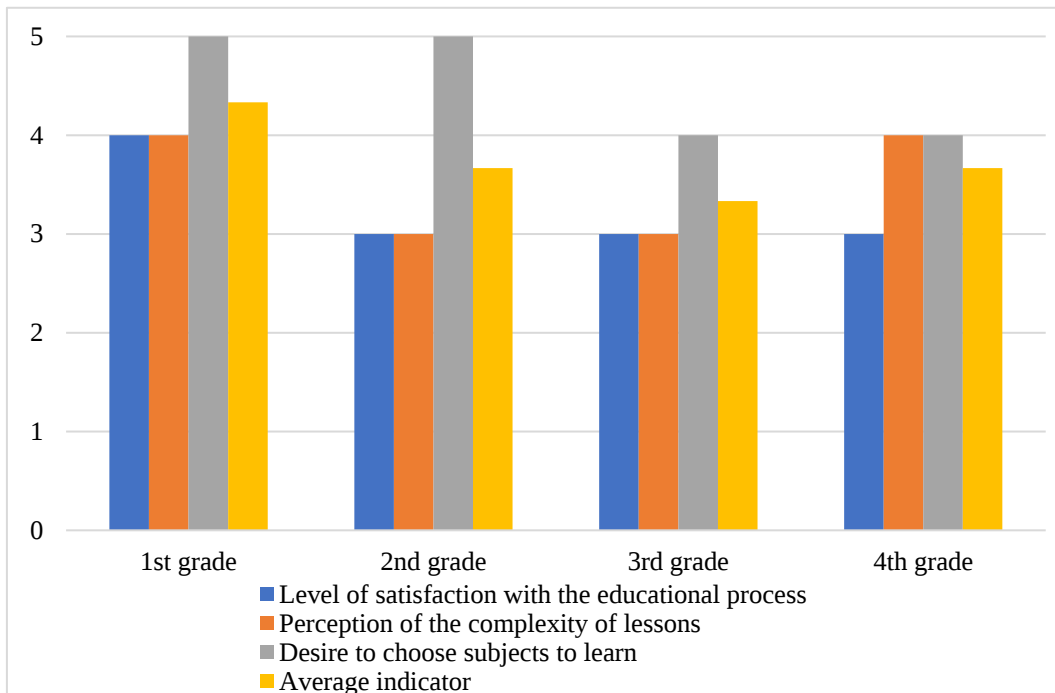


Figure 4: Numerical indicators of the survey of primary school students

The figure presents data from a learner survey across four grades on key aspects of the educational process: satisfaction with the educational process, perception of the complexity of lessons, and desire to choose subjects. Level of satisfaction with the educational process shows a general decline as grade level increases, with the highest score of 4 in first grade, indicating that learners are more satisfied with the educational process in earlier grades. The perception of the complexity of lessons is fairly consistent across the grades, with most learners rating it around 3, indicating a moderate level of perceived complexity of lessons. The fourth grade has a slightly higher score, possibly reflecting a higher level of complexity as students progress. The desire to choose subjects to learn is highest in the first and second grades (5), showing that students in these grades have a strong desire for subject autonomy. This desire decreases in the higher grades (3rd and 4th), with a slight decline in third grade and remaining stable in fourth grade. The average indicator decreases across the grades, with first grade scoring the highest at 4.3 and fourth grade scoring the lowest at 3.7. This suggests that as students advance through the grades, they perceive a decline in these aspects, potentially reflecting increasing challenges in maintaining engagement and satisfaction as students progress in their education.

It is important to contemplate the modification of pedagogical approaches to enhance student engagement and satisfaction. This could involve exploring ways to make the lessons more interactive and relevant to students' interests, particularly in third and fourth grades where a decline in satisfaction and desire to choose subjects is noted.

Furthermore, it is essential to cultivate an environment that promotes subject autonomy and sustains elevated satisfaction levels by providing students with increased possibilities to shape their learning experiences.

General trends suggest that with the increasing age of students, new challenges arise in the educational process, but there remains a high interest in individualisation and choice of subjects. It is necessary to strive for a revision of approaches in didactics, considering modern requirements and learning needs. An important step will be the integration of more active and interactive learning methods that promote the development of critical thinking and creative skills and arouse interest in learning. It is also important to pay attention to improving the use of information and communication technologies in the educational process. The development of these aspects of didactics will bring substantial benefits to primary education in the Republic of Kazakhstan, such as more effective assimilation of material, development of digital skills among students, preparation for modern challenges, and improvement of the overall quality of primary school graduates. Updating the didactics of primary education in the Republic of Kazakhstan is recommended to be implemented through a comprehensive methodology focused on the development of various aspects of education:

1. Interactive teaching methods: the use of methods that enhance interaction between students and teachers; the introduction of group projects, discussions, and collective problem-solving to support the active participation of each student in the educational process.
2. The use of information and communication technologies: the integration of modern technologies to improve access to educational resources, create interactive lessons, and develop students' digital competencies.
3. A differentiated approach: considering the individual characteristics and the rate of assimilation of the material by each student; the introduction of various methods and support for students with different levels of training.
4. Development of critical thinking and creative activity skills: the inclusion in the training programme of tasks aimed at stimulating analytical thinking, a creative approach to problem-solving, and the development of independence.
5. Teaching social skills and civic responsibility: introducing tasks into the educational process aimed at developing communication skills, respect for diversity, and the formation of responsible citizens.
6. Focus on STEM education: increasing attention to science, technology, engineering, and mathematics through hands-on activities and project activities.

A pilot implementation in several educational institutions is recommended for the successful implementation of the developed education model in primary schools in

Kazakhstan. At the initial stage, staff training will be required; materials will be adapted to the specifics of each school, and technological tools will be introduced. A results monitoring system will be launched simultaneously to assess effectiveness and collect feedback. If problems are identified, such as insufficient staff training and technical difficulties, training sessions, technical support, and information campaigns should be organised. After a successful launch, the model should be scaled to other educational institutions, considering the changes and needs of the educational environment. A flexible approach and attention to feedback are the basis for the successful implementation of the new methodology.

The update of didactics requires adaptation to modern society's changing needs and individualisation of educational approaches to consider each student's unique characteristics. Innovation plays a crucial role in bringing new methods and technologies to create an interactive educational environment that promotes active student engagement. Classical didactic approaches, including theories by Comenius and Vygotsky, emphasise student interaction and individual needs, while modern concepts focus on developing competencies such as critical thinking and problem-solving. Primary education in Kazakhstan follows state standards covering subjects such as Mathematics, Digital Literacy, and Natural Science, with recent changes including the division of Technology and Art into separate subjects and the introduction of Mathematics and Logic. The education system in Kazakhstan demonstrates strengths in offering diverse subjects and clearly defined learning outcomes, though it faces challenges such as potential neglect of individual student needs and insufficient ICT development. Survey results from teachers, parents, and students revealed generally positive satisfaction with the educational environment, though responses varied among different groups, with teachers showing higher satisfaction levels than parents and students, demonstrating declining satisfaction as grade levels increased.

Discussion

In the course of the study, key data related to various aspects of the primary school educational system in the Republic of Kazakhstan were disclosed. The results identified the importance of an integrated approach to improving the educational process and the need to develop effective learning strategies adapted to the needs of a modern student. A review of the studies by other scientists on the subject of improving the quality of primary education was conducted to comprehend the results obtained and consider them in the broad context of current trends in education.

A study by Vásquez and Alsina (2021) made a substantial contribution to understanding the methods of teaching probability theory in elementary school. The authors analysed a wide range of tasks used by teachers to make the material accessible and understandable for students of a given age. The study focused on both traditional and innovative methods, including the use of game elements and interactive applications. The results determined that successful practices in teaching probability theory were characterised not only by a variety of tasks but also by the flexibility and adaptability

of learning approaches. This emphasised the importance of teachers' attention to students' individual needs and the use of various strategies for optimal learning of the material. In the context of the results of the study, which recommend focusing on a differentiated approach and the introduction of interactive teaching methods, the importance of flexibility and adaptability in the educational process of primary schools is confirmed.

Furlan et al. (2021) dedicate their article to developing a curriculum that would allow children to understand the basic concepts of genetics through interesting and accessible methods, focusing on the introduction of didactic materials and laboratory exercises that help students explore the world of genetics in a playful and practical way. The results highlight the importance of using interactive methods and practical exercises to teach genetics effectively in primary school. The proposed approach was tested in practice, which allowed the authors to assert that it not only contributed to deeper assimilation of the material but also helped in the development of scientific thinking and increased the interest of students in science. Thus, the study confirms that the introduction of innovative methods and laboratory classes can be the key to forming a positive attitude towards science in children and unlocking their potential in this field.

The study by Mård and Hilli (2022) presents a didactic model for teaching focused on the integration of various disciplines into the educational process. The research analyses teaching methods used in interdisciplinary practice in primary schools in Finland. The authors examine various pedagogical approaches used in Finnish primary schools to determine the optimal methods for integrating various disciplines into the educational process. Special attention is paid to the development of a didactic model that corresponds to the specific features of the Finnish education system and promotes effective multidisciplinary learning. The study presents practical examples of interdisciplinary pedagogy in Finnish primary schools, including various teaching cases where methods were used to facilitate the integration of various disciplines. The use of integrated teaching methods contributes to a deeper and more comprehensive assimilation of knowledge by students, making this approach promising for educational practice. The results of the study demonstrate that the development of a didactic model for interdisciplinary learning has a high potential for optimising the educational process in primary schools, which confirms the importance of updating didactics in accordance with the challenges of modernity.

Ruiz-Bañuls et al. (2021) analyse the application of gaming methods and transmedia in the educational environment of primary schools, considering an interdisciplinary approach. The authors investigate which specific game elements and transmedia approaches can be used to enrich the learning process and create a more interactive and exciting learning environment. The didactic approach, integrating game methods and transmedia techniques, was specially developed for the primary school educational process to stimulate interest in learning, increase motivation, and improve learning outcomes. In the context of the results of the study, indicating the importance of

structural and substantive changes in the educational programme of primary schools, this study supports the idea that the introduction of gaming methods and transmedia can be a promising direction for effective improvement of the educational process, contributing to deeper learning and the development of critical thinking in students.

Fernandez-Costales (2021) analyses primary school students' perception of audiovisual translation methods, such as subtitles and dubbing, in the context of learning a foreign language. The results of the study reveal that students have different preferences regarding the use of these methods: some prefer subtitles, considering them useful for learning new words and phrases, while others prefer dubbing, considering it more convenient and understandable. Notably, the effectiveness of both methods may depend on the individual preferences and characteristics of the students. The results confirm the importance of using a variety of teaching methods and structural changes in primary school educational programmes. Considering students' individual preferences and needs when choosing teaching methods is one way to improve the didactics of primary education in the Republic of Kazakhstan.

Mercader and Gairin (2021) focus on the assessment of various aspects of the perception of digital competence by students studying at the faculties of preschool and primary education. The reviewed study focused on analysing how students evaluate their skills and level of digital literacy and on examining the factors influencing this assessment, in particular, the level of education and the path of admission to the faculty. The authors found that students' perceptions of their digital competence vary based on their level of education and admission pathway. Specifically, students in the faculty of primary education tend to assess their digital competence more highly than those in preschool education. Additionally, students admitted to preschool and primary education faculties through specialised programmes or selective admission processes are more likely to rate their digital skills higher than those who entered through the general admission process. The data of the reviewed study indicates the importance of considering the training of future teachers in the successful application of updated educational programmes. The formation of educational practices for students of preschool and primary education, considering their needs and differences in digital competencies, is a promising area for future research.

A study by Vollmer (2021) investigates various aspects of the development of subject and general subject didactics in the context of the educational systems of German-speaking countries. The main focus is on analysing recent changes and innovations in teaching methods and assessing their impact on students' educational knowledge and skills. The author concludes that modern approaches in subject and general subject didactics play a key role in the formation of solid educational knowledge among students, and the active introduction of new teaching methods and the use of modern technologies in the educational process contribute to a deeper and meaningful assimilation of the material. Thus, the study confirms the importance of integrating subject and general subject didactics to achieve optimal learning outcomes. The

effective combination of general principles of teaching with unique methods of teaching specific subjects proposed in the conducted study, in accordance with the results of the reviewed study, is a vital factor in improving the quality of education.

The general trend identified in all the studies reviewed is the desire to introduce innovative approaches into the educational process of primary schools. Modern education requires not only adaptation to technological changes but also the active introduction of interactive teaching methods, digital resources, and interdisciplinary approaches. Successful teaching practices include flexibility in methods, an emphasis on individual student needs, and the use of game and transmedia elements. The modern scientific community has shown a desire to create an educational environment that promotes not only the development of educational material but also the development of critical thinking, creativity, and digital literacy, considering modern challenges and requirements.

Conclusions

The study allowed the researchers to draw several important conclusions regarding the current state of education in primary schools of the Republic of Kazakhstan. Consideration of classical and modern didactic approaches and analysis of the main provisions of the primary school education system demonstrated the relevance of structural changes, especially in the integration of modern pedagogical approaches and technologies to ensure high-quality education that meets the requirements of modern society.

The survey of respondents conducted during the study allowed us to identify opinions about the primary school education system from the standpoints of not only teachers but also students and their parents. An analysis of the responses of primary school teachers demonstrated specific difficulties in teaching basic subject areas such as mathematics, reading, and writing. This confirmed the need to revise teaching methods and introduce modern educational technologies to support teaching more effectively. A positive perception of the educational environment prevailed among parents of primary school students, but expectations were expressed for changes in the curriculum of primary schools. Notably, modern technologies are considered a positive influence on the education and development of their children by parents. The students of the lower grades expressed vivid preferences and interests in learning. During the survey, it was established that children feel more confident in those subjects that arouse interest, while other educational tasks seem more difficult to them. This observation highlights the importance of adapting teaching methods to the individual styles and needs of students.

Thus, the results of the study allowed us to conclude that further changes are needed in the educational system of primary schools in Kazakhstan. The focus on personalised approaches, the introduction of innovative technologies, and closer interaction between teachers, parents, and students are critical steps towards creating a more efficient and modern education system. Solving this problem in the future will create a more flexible

and adaptive educational system that will contribute to improving the overall effectiveness of education, providing better preparation of students for modern challenges, and providing the necessary skills for professional growth.

Building on the study's examination of Kazakhstan's primary education system, future research should explore the longitudinal impacts of ICT integration and innovative teaching methods on student outcomes across different socio-economic backgrounds. The findings' contribution to didactic theory highlights the importance of balancing standardised curricula with individualised learning approaches, suggesting a need for research into adaptive teaching methodologies that can scale across diverse educational settings. The study's practical applications in identifying gaps between urban and rural educational resources point to opportunities for investigating technology-enabled solutions that could bridge these disparities while maintaining educational quality. Further research could also examine the long-term effectiveness of the proposed interactive teaching methods and STEM focus, particularly through comparative studies across different regions and educational contexts.

References

- Babanazarovich, N. H. 2021. "The Essence of Integration in Primary Education Classes". *European Scholar Journal* 2 (11): 39–42. <http://scholarzest.com/index.php/esj/article/view/1406>.
- Blunden, A. 2021. "Vygotsky's Theory of Child Development". In *Hegel, Marx and Vygotsky, Essays on Social Philosophy*, 143–155. Leiden: Brill. https://doi.org/10.1163/9789004470972_009.
- Fernandez-Costales, A. 2021. "Audiovisual Translation in Primary Education. Students' Perceptions of the Didactic Possibilities of Subtitling and Dubbing in Foreign Language Learning". *Meta* 66 (2): 280–300. <https://doi.org/10.7202/1083179ar>.
- Frierson, P. 2022. *The Moral Philosophy of Maria Montessori: Agency and Ethical Life*. London: Bloomsbury Publishing. <https://doi.org/10.5040/9781350176409>.
- Furlan, S., M. Bellio, F. Corrà, S. Schumann, M. Bonato, P. Irato, and G. Santovito. 2021. "A, B, C, D ... NA: Genetics Explained to Children. An Innovative Didactic and Laboratory Proposal in Primary School". In *Edulearn 21: 13th International Conference on Education and New Learning Technologies Conference Proceedings*, edited by L. Gómez Chova, A. López Martínez and I. Candel Torres, 6012–6021. Valencia: IATED. <https://doi.org/10.21125/edulearn.2021.1216>.
- Ibrayeva, E. S., and B. K. Shaushekova. 2022. "Raising Awareness for the Lack of Interest in STEM of Primary School Learners in Kazakhstan: Experiences and Perspectives". Preprint, Research Square, August 23rd, 2022. <https://doi.org/10.21203/rs.3.rs-1963121/v1>.

- Kambatyrova, A., B. Assylbekova, and B. Goodman. 2022. "Primary School English Language Education in Kazakhstan: Policy, Preparation, and Practice". In *English for Young Learners in Asia; Challenges and Directions for Teacher Education*, edited by S. Zein and G. Butler, 48–64. London: Routledge. <https://doi.org/10.4324/9781003016977-4>.
- Karimova, G. S., P. Z. Ishanov, G. B. Sarzhanova, S. A. Odintsova, and S. K. Abildina. 2023. "Digital Transformation of Knowledge and Learning Content in Educating English Language to Primary School Children". *International Journal of Knowledge and Learning* 16 (4): 374–394. <https://doi.org/10.1504/IJKL.2023.134097>.
- Khabibullayevna, H. M. 2021. "Scientific-Theoretical Fundamentals of Improving the Methodological Training of Future Primary School Teachers to Teach the Subject of Education". *Turkish Online Journal of Qualitative Inquiry* 12 (10).
- Lebid, T. 2023. "Electronic Culture: Achievements and Growth Vectors". *Library Science. Record Studies. Informology* 4: 22–32. <https://bdi.com.ua/en/journals/tom-19-4-2023/yelektronna-kultura-dosyagnennya-ta-vektori-rozvitku>.
- Lee, G. G., and H. G. Hong. 2021. "John Amos Comenius as the Prophet of Modern Ideas in Science Education: In the Light of Pansophia". *History of Education* 50 (1): 1–26. <https://doi.org/10.1080/0046760X.2020.1836265>.
- Lomachinskyi, B. 2023. "Information Culture in the Library: Challenges of Digitalization". *Library Science. Record Studies. Informology* 19 (4): 75–83. <https://bdi.com.ua/en/journals/tom-19-4-2023/informatsiyna-kultura-v-prostori-bibiloteki-vikliki-tsifrovizatsiyi>.
- Lomachynsky, B. 2023. "Prospects for the Implementation of the Concept of Digital Citizenship in Scientific Libraries". *Society. Document. Communication* 8 (4): 29–39. <https://doi.org/10.69587/sdc/4.2023.29>.
- Lorente-Echeverría, S., I. Canales-Lacruz, and B. Murillo-Pardo. 2022. "The Vision of Future Primary School Teachers as to Education for Sustainable Development from a Competency-Based Approach". *Sustainability* 14 (18): 11267. <https://doi.org/10.3390/su141811267>.
- Machynska, N. I. 2018. "Diversification of the Content of Pedagogical Training of Specialists for Primary Education". (In Ukrainian.) *Scientific Bulletin of Mukachevo State University. Series "Pedagogy and Psychology"* 4 (1): 111–115. <https://pp-msu.com.ua/en/journals/tom-4-1-2018/diversifikatsiya-zmistu-pedagogichnoyi-pidgotovki-fakhivtsiv-dlya-pochatkovoyi-osviti>.
- Mård, N., and C. Hilli. 2022. "Towards a Didactic Model for Multidisciplinary Teaching—A Didactic Analysis of Multidisciplinary Cases in Finnish Primary Schools". *Journal of Curriculum Studies* 54 (2): 243–258. <https://doi.org/10.1080/00220272.2020.1827044>.

- Mercader, C., and J. Gairin. 2021. "The Perception of Teachers' Digital Competence of Preservice Pre-Primary and Primary Education Teachers. The Influence of Degree and Entrance Path". *IEEE Ibero-American Magazine of Learning Technologies* 16 (1): 100–106. <https://doi.org/10.1109/RITA.2021.3052684>.
- Ostrowska, M. 2022. "Effectiveness of the Pedagogical System of Training Future Primary School Teachers to Use Innovative Technologies: Research Results". *Professional Education: Methodology, Theory and Technologies* (16): 238–253. <https://doi.org/10.31470/2415-3729-2022-16-238-253>.
- Poročani, N., and M. L. Začellari. 2022. "Challenges of Distance Didactics (Data and Recommendations)". *Journal of Language and Linguistic Studies* 18 (1): 299–312. <http://www.jlls.org/index.php/jlls/article/viewFile/2700/1009>.
- Republic of Kazakhstan. 2022. "On the Approval of State Compulsory Standards for Preschool Education and Training, Primary, Basic Secondary and General Secondary, Technical and Vocational and Post-Secondary Education". Order of the Minister of Education of the Republic of Kazakhstan No. 348. Accessed February 25, 2025. <https://adilet.zan.kz/rus/docs/V2200029031#z20>.
- Republic of Kazakhstan. 2023. "On Approval of the Concept for the Development of Preschool, Secondary, Technical and Vocational Education of the Republic of Kazakhstan for 2023–2029". Resolution of the Government of the Republic of Kazakhstan No. 249. Accessed February 25, 2025. <https://adilet.zan.kz/rus/docs/P2300000249#z80>.
- Rivera, R., J. Smart, S. Sakaria, A. Wray, W. Wiechmann, M. Boysen-Osborn, and S. Toohey. 2021. "Planning Engaging, Remote, Synchronous Didactics in the COVID-19 Pandemic Era". *JMIR Medical Education* 7 (2): e25213. <https://doi.org/10.2196/25213>.
- Ruiz-Bañuls, M., I. Gómez-Trigueros, J. Rovira-Collado, and M. L. Rico-Gómez. 2021. "Gamification and Transmedia in Interdisciplinary Contexts: A Didactic Intervention for the Primary School Classroom". *Heliyon* 7 (6): e07374. <https://doi.org/10.1016/j.heliyon.2021.e07374>.
- Sardor, A., and A. Nafosat. 2023. "Effectiveness of Using Didactic Games in Primary Education". *Pedagog Respublika Ilmiy Jurnal* 6 (2): 532–535.
- Serpa-Andrade, L., E. Pinos-Velez, and F. Rivera-Calle. 2021. "Didactic Adaptation with ICT's Preliminary Educational Proposal". In *Advances in Physical, Social and Occupational Ergonomics: Proceedings of the AHFE 2021 Virtual Conferences on Physical Ergonomics and Human Factors, Social and Occupational Ergonomics, and Cross-Cultural Decision Making*, edited by R. S. Goonetilleke, S. Xiong, H. Kalkis, Z. Roja, W. Karwowski and A. Murata, 179–185. Cham: Springer. https://doi.org/10.1007/978-3-030-80713-9_23.

- Tsiuniak, O. P. 2020. “The Essence and Structure of Professional Readiness of Future Masters of Primary Education for Innovation Activity”. *Scientific Bulletin of Mukachevo State University. Series “Pedagogy and Psychology”* 6 (1): 197–204.
[https://doi.org/10.52534/msu-pp.6\(1\).2020.197-204](https://doi.org/10.52534/msu-pp.6(1).2020.197-204).
- Vásquez, C., and Á Alsina. 2021. “Analysing Probability Teaching Practices in Primary Education: What Tasks Do Teachers Implement?” *Mathematics* 9 (19): 2493.
<https://doi.org/10.3390/math9192493>.
- Vollmer, H. J. 2021. “Powerful Educational Knowledge through Subject Didactics and General Subject Didactics. Recent Developments in German-Speaking Countries”. *Journal of Curriculum Studies* 53 (2): 229–246. <https://doi.org/10.1080/00220272.2021.1887363>.
- Willert, N., and J. Eriksson. 2023. “Towards a Feature-Based Didactic Framework for Generating Individualized Programming Tasks for an E-Learning Environment”. In *Proceedings of the 5th European Conference on Software Engineering Education*, edited by J. Mottok, 246–255. New York: Association for Computing Machinery.
<https://doi.org/10.1145/3593663.3593677>.
- Zlenko, A., D. Miroshnichenko, Y. Liashchenko, and Y. Zlenko. 2023. “Efficiency of Remote Access Services by Global Libraries”. *Society. Document. Communication* 8 (3): 44–54.
<https://doi.org/10.69587/sdc/3.2023.44>.