INFLUENCE OF DIGITALIZATION ON THE VOCATIONAL TRAINING OF PRIMARY SCHOOL TEACHERS BASED ON KAZAKH NATIONAL FEATURES AND ETHNOPEDAGOGICAL TRADITIONS

INFLUÊNCIA DA DIGITALIZAÇÃO NA FORMAÇÃO PROFISSIONAL DOS PROFESSORES DO ENSINO PRIMÁRIO COM BASE NAS CARACTERÍSTICAS NACIONAIS E NAS TRADIÇÕES ETNOPEDAGÓGICAS DO CAZAQUISTÃO

INFLUENCIA DE LA DIGITALIZACIÓN EN LA FORMACIÓN PROFESIONAL DE LOS MAESTROS DE PRIMARIA BASADA EN LAS CARACTERÍSTICAS NACIONALES Y LAS TRADICIONES ETNOPEDAGÓGICAS DE KAZAJSTÁN

Serikkhan ZHUZEYEV[i]
e-mail: serikkhan.zhuzeyev@mymail.academy

Manat ZHAILAUOVA[ii]
e-mail: manat.zhailauova@mymail.academy

Aizhan MAKASHEVA[iii]
e-mail: aizhan.makasheva@mymail.academy

Kulache KYDYRBAEVA[iv]
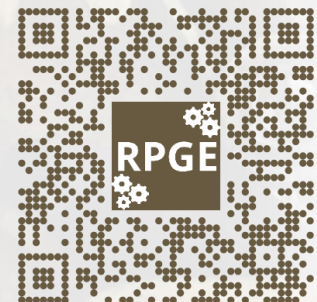e-mail: kulache.kydyrbaeva@mymail.academy

Gulnara OMAROVA[v]
e-mail: gulnara.omarova@mymail.academy

Bota SULEIMENOVA[vi]
e-mail: bota.suleimenova@mymail.academy

Editor: Prof. Dr. Sebastião de Souza Lemes
Deputy Executive Editor: Prof. Dr. José Anderson Santos Cruz

ABSTRACT: Digital technologies play a key role in enhancing the educational process, promoting greater accessibility, and effectiveness, and preparing future teachers to live in an information-oriented society. This study uses digital technologies to explore the possibilities for training primary school teachers based on the ethnopedagogical characteristics and traditions of Kazakhstan. The article presents the results of an experimental study introducing a methodology for training primary school teachers aimed at enhancing their ethnopedagogical competencies through digital technologies. The research concludes that the incorporation of digital technologies in the training of primary school teachers, based on the ethnopedagogical peculiarities and traditions of Kazakhstan, requires mastery of both theoretical and practical aspects of contemporary digital technologies, as well as the promotion of essential competencies, including ethnopedagogical ones.

KEYWORDS: Digital technology. Ethnopedagogical competence. Primary school teachers. Primary school students. Ethnopedagogical educational environment.

RESUMO: As tecnologias digitais desempenham um papel fundamental na melhoria do processo educativo, promovendo maior acessibilidade, eficácia e preparando os futuros professores para viver em uma sociedade orientada pela informação. Este estudo investiga as possibilidades de formação de professores do ensino fundamental com base nas características e tradições etnopedagógicas do Cazaquistão, utilizando tecnologias digitais. O artigo apresenta os resultados de uma pesquisa experimental sobre a introdução de uma metodologia para a formação de professores do ensino fundamental, que visa aprimorar suas competências etnopedagógicas por meio do uso de tecnologias digitais. A pesquisa conclui que a incorporação das tecnologias digitais na formação de professores do ensino fundamental, baseada nas particularidades etnopedagógicas e nas tradições do Cazaquistão, requer o domínio tanto dos aspectos teóricos quanto práticos no uso das tecnologias digitais contemporâneas, além da promoção de competências fundamentais, incluindo as etnopedagógicas.

PALAVRAS-CHAVE: Tecnologia digital. Competência etnopedagógica. Professores do ensino básico. Alunos do ensino primário. Ambiente educativo etnopedagógico.

RESUMEN: Las tecnologías digitales desempeñan un papel fundamental en la mejora del proceso educativo, promoviendo una mayor accesibilidad, eficacia y preparando a los futuros docentes para vivir en una sociedad orientada por la información. Este estudio investiga las posibilidades de formación de docentes de educación primaria, basándose en las características y tradiciones etnopedagógicas de Kazajistán, utilizando tecnologías digitales. El artículo presenta los resultados de una investigación experimental sobre la introducción de una metodología para la formación de docentes de educación primaria, que busca mejorar sus competencias etnopedagógicas mediante el uso de tecnologías digitales. La investigación concluye que la incorporación de las tecnologías digitales en la formación de docentes de educación primaria, basada en las particularidades etnopedagógicas y las tradiciones de Kazajistán, requiere el dominio tanto de los aspectos teóricos como prácticos en el uso de tecnologías digitales contemporáneas, además de promover competencias fundamentales, incluidas las etnopedagógicas.

PALABRAS CLAVE: Tecnología digital. Competencia etnopedagógica. Docentes de educación primaria. Estudiantes de educación primaria. Ambiente educativo etnopedagógico.

Introduction

With the advance of digitalization, the educational process has become unfeasible without the integration of innovative technologies (Shichkin *et al*., 2024a; Ukolova; Afanasyev, 2023). In Kazakhstan, one of the priorities in educational development is the adoption of digital technologies to improve the teaching-learning process, increase its accessibility and effectiveness, and prepare specialists to work in an increasingly digitalized society. It is therefore, essential to incorporate digital methods and tools into the educational process in order to optimize the assimilation and understanding of academic subjects (Shichkin *et al*., 2024b).

Scientific literature points out that there are currently favorable conditions for the digitalization of contemporary education (Nikulina; Starichenko, 2018), for the development of professional competencies among elementary school teachers (Baklanova, 2015; Zhuzeyev *et al*.2024b), as well as digital literacy and raising teachers' awareness of the use of digital technologies (Boronenko; Fedotova, 2022; Rakhinsky *et al*., 2021).

The training of elementary school teachers requires not only theoretical and practical mastery of cutting-edge digital technologies, but also the development of personality traits that are essential for their professional performance (Yakovleva *et al*., 2021). Noskova and Petrova point out that, in the face of rapid technological advances, it is essential for teachers to acquire digital skills (Noskova; Petrova, 2020). Similarly, Ivanković and Igić (2021) argue that the use of advanced digital tools facilitates the work of teachers, making the teaching process more dynamic and effective.

Syahid *et al*. (2019) emphasize the importance of training essential education professionals to use digital tools in their teaching practices. Loudova (2020) notes that in the current system of professional teacher training, the level of preparation for the use of digital technologies, considering operational and design aspects, is still insufficient. Thus, mastering the theoretical and practical foundations related to the use of digital technologies should occupy a central position in the training of educators (Arstangaleeva; Tezina; Slobodchikova, 2021; Evtykhova; Burkova, 2022).

Soboleva *et al*. (2021), when investigating the use of web technologies in the professional training of teachers, concluded that these tools contribute to the development of students' creative and intellectual capacities, increase their motivation to learn, and promote cognitive activity. In addition, they enable agile and efficient communication in the educational environment of higher education institutions. Recent studies (Kryucheva; Tolstoukhova, 2023)

also show that students are highly interested in using digital applications in their future professional practices and in integrating them into the educational process on an ongoing basis.

Considering the ethnic diversity of the Kazakh population, it is essential that the modern educator has extensive knowledge of the pedagogical traditions of the Kazakh people and the other ethnic groups present in the country (Aipova *et al*., 2023; Bindyukova; Mudrakova, 2016). The need to develop teachers' ethnopedagogical competence also stems from general trends in pedagogy, which emphasize the importance of awareness of the processes of teaching, training, and socialization of the individual (Mukhtarova; Muskhanova, 2016; Potapov, 2021). Currently, this training seeks to incorporate educational approaches that value civilizational, axiological, cultural, and competence-based aspects, among other perspectives (Akchulpanova, 2015).

Basic education professionals have a specific demand for ethnopedagogical skills. The ability of these teachers to creatively integrate global pedagogical experiences, taking into account the ethnic diversity of their students, is a determining factor in the effectiveness of the educational process, the success of collaboration between teachers and parents, and the overall quality of the children's education and training (Karimova *et al*., 2022; Mukhtarova, 2008).

The teaching carried out by elementary school teachers is based on universal principles and the cultural values characteristic of the Kazakh people (Izhbuldina; Sinagatullin; Gornaia, 2023). This process aims to encourage respect for and appreciation of national, historical, and cultural heritage, including the preservation of intangible cultural heritage (Volkov, 2005). It also seeks to promote trust, mutual understanding and harmonious coexistence between different ethnic, national and religious groups (Abdullina; Petrova; Berzina, 2018).

An analysis of traditional elementary school curricula shows that their content emphasizes the development of cultural, civic, social and environmental skills. The successful formation of these skills is intrinsically linked to adequate ethnopedagogical preparation of teachers (Mamleeva *et al*., 2011; Mukhametzhanova; Tleuberlinova, 2024).

However, the influence of digitalization on the qualification of elementary school teachers, considering Kazakh ethnopedagogical particularities and traditions, has not yet been the subject of in-depth scientific analysis.

Serikkhan ZHUZEYEV, Manat K. ZHAILAUOVA, Aizhan Prmaganbetovna MAKASHEVA, Kulache KYDYRBAEVA, Gulnara Zholdasovna OMAROVA and Bota SULEIMENOVA

Study Objective

The aim of this study is to assess how digital technologies influence the improvement of elementary school teachers' professional training.

Methods

The experimental study adopted a methodology that integrated Kazakh ethnopedagogical traditions and characteristics with the use of digital technologies, in line with the research objectives. The research involved defining the experimental stages, planning the program, formulating criteria for evaluating the results, carrying out the experiment, and analyzing the data collected.

The study participants consisted of 2nd to 4th year undergraduate students in basic education, enrolled in pedagogical universities in Kazakhstan. The total sample included 213 students, and the formative experiment was conducted in multiple stages, the details of which are shown in Chart 1.

Chart 1 - The stages of the teaching experience

Stage	Stage content
Preparatory stage (research and organization);	Literature review;
Verification experiment;	Analysis of the Current State of Elementary School Teacher Training: Assessment based on the ethnopedagogical characteristics and traditions of Kazakhstan, with a focus on determining the level of ethnopedagogical competence;
Intervention Experiment;	Implementation of Pedagogical Conditions: Integration of specific practices in the educational process of pedagogical universities;
Conclusive stage (closing).	Identifying the Dynamics of Change: Comparison of the development of ethnopedagogical competence among teachers in training who are subjected to traditional and experimental methods.

Source: Prepared by the authors

The diagnostic stage consisted of analyzing the results obtained through questionnaires, tests, and individual interviews with the students. Below are examples of control questions taken from the tests:

a) The essence and ways of applying the principles of ethnopedagogy in the context of basic education, with the use of digital technologies;

b) The characteristics of incorporating digital technologies into the educational and training process at elementary school, in the context of developing students' knowledge of the traditions and cultural aspects of the Kazakh people;

c) The methodological approach to promote understanding of the traditions and characteristics of the Kazakh people among elementary school students, using digital technologies as part of the educational and formative process in the early grades (1st to 4th grade);

d) The specificities of promoting knowledge about the traditions and characteristics of the Kazakh people among students from 1st to 4th grade, during extracurricular activities with the use of digital technologies;

e) The approach to building knowledge about the traditions and characteristics of the Kazakh people among elementary school students using digital technologies;

f) The particularities of the use of practical activities in the construction of knowledge about the traditions and characteristics of the Kazakh people among elementary school students, based on the use of digital technologies in extracurricular activities;

g) The specificities of the use of educational games, through the integration of digital technologies, in the educational process of elementary school, with the aim of promoting knowledge about the traditions and characteristics of the Kazakh people among elementary school students during extracurricular activities.

The initial level of ethnopedagogical competence of elementary school teachers was established on the basis of the following criteria: the motivation to share knowledge about the traditions and characteristics of the people of Kazakhstan with elementary school students as part of future professional development; the depth and integrated approach of the teachers' general and specialized pedagogical knowledge; the demonstration of fundamental personal and professional skills to promote understanding about the traditions and cultural characteristics of Kazakhstan among elementary school students; and the ability to self-reflect, self-manage and predict the results of implementing methodological projects aimed at transmitting this knowledge to students.

For the statistical analysis, all stages of the experiment followed a 4-point scale. When assessing the level of ethnopedagogical competence, four levels were defined for this phenomenon: 4 points - high level; 3 points - adequate level; 2 points - satisfactory level; 1

e-ISSN: 1519-9029
6

point - low level. A similar set of diagnostic materials was applied as part of the final control during the formative phase of the experiment.

In the organization of the formative phase, the participants were divided into the experimental group (EG) and the control group (CG). The equality of the students' participation in the experiment was ensured through surveys and tests that were applied to the individuals with diagnostic tools. The initial diagnosis determined the students' level of ethnopedagogical competence.

The members of the CG were trained according to the traditional model for teaching elementary school teachers. In contrast, at GE, an approach focused on training elementary school teachers was implemented, prioritizing the construction of knowledge about the traditions and cultural characteristics of the people of Kazakhstan, with the use of digital technologies integrated into various professional disciplines.

As part of the experiential training, the students:

a) have developed skills in the use of online services to organize the ethnocultural educational environment;

b) learned the main methods and strategies for using digital technologies in the classroom, applied in the practical work of elementary school teachers, with the aim of structuring the ethnocultural educational space;

c) improved their competence in using digital tools and online services to structure the ethnopedagogical educational environment in the work of elementary school teachers;

d) improved their ability to coordinate interaction between the various participants in the educational process within ethnopedagogical practice with the support of digital technologies;

e) improved their competence in choosing and applying online services to organize the ethnopedagogical educational environment and manage the process of coexistence between children from different cultural backgrounds;

f) expanded teachers' professional skills in the use of digital technologies to structure the ethnopedagogical educational environment;

g) deepened their knowledge of various media resources and improved their ability to use them in the organization of the ethnopedagogical educational space.

Thus, the GE students recognized that digital teaching tools are fundamental instruments for the ethnopedagogical education of children, as they provide immediate and free access to knowledge and information. By engaging in the experimental interactions, the students understood that ethnopedagogical education contributes to the development of tolerant attitudes in children, fostering the formation of more empathetic individuals.

The methodological approach adopted allowed the students to familiarize themselves with the practices of integrating digital technologies into the educational context. Examples of these practices can be seen in Chart 2.

Chart 2 - Potential applications of digital technologies

Class stage	Applicable digital technologies
The phase of acquiring new knowledge and improving skills, competencies, and universal educational actions (UEA);	Audio and video excerpts, sound recordings, multimedia presentations;
The phase of organizing and structuring knowledge, skills and competencies;	Interactive games, improvement games
The phase of applying knowledge, skills, competencies, and AEU in practical and creative activities;	Computer software training activities;
The phase of assessing the accuracy of the completion of the exercise (checking the students' understanding of knowledge, skills, competences and AEU);	Use of computer programs that generate interactive exercises and tasks: quizzes - multiple choice questions; gap-filling; associations; crossword puzzles; restoration of logical sequence; reconnection of classifications; alternatives with open questions;
The phase of monitoring the mastery of knowledge, skills, and competencies;	Assessment software, digital educational resources, and monitoring programs.

Source: Prepared by the authors

As part of the final phase of the diagnostic experiment, the indicators relating to the final degree of development of ethnopedagogical competence were analyzed, and the levels obtained in the final stage were compared with the initial levels. The experimental data was examined to verify the effectiveness of the methodology applied. The formative phase indicators were systematized, and statistical data processing was carried out based on the analysis of experimental results, using appropriate statistical methods.

To assess the effectiveness of the methodology, the results obtained before and after the experiment were processed using Pearson's χ^2 criterion, which checks the reliability of the differences between the percentage distributions of the two samples.

The statistical research hypotheses formulated were:

a) the empirical distributions of the EG and CG students in relation to their levels of ethnopedagogical competence after the experiment show no relevant differences (H0);

b) the empirical distributions of the EG and CG students in relation to their levels of ethnopedagogical competence after the experiment show significant differences (H1).

The empirical value of Pearson's $\chi 2$ classifications was calculated using SPSS Statistics software.

Results

The results obtained in the initial control (EC) and final control (FC) were systematized and summarized. Table 1 shows a comparison between the EC and CF indicators, which illustrate progress in developing the ethnopedagogical competence of elementary school teachers.

Table 1 - Indicators of ethnopedagogical competence in the CE and CF phases

| Group | Phase | Number of students | Ethnopedagogical skills development indicators | | | | | | Average |
| | | | High (4 points) | | Sufficient (3 points) | | Satisfactory (2 points) | | |
			Number of students	%	Number of students	%	Number of students	%	
GC	EC	105	10	9.53	43	40.95	52	49.52	2.58
	CF	104	13	12.5	46	44.23	45	43.27	2.66
GE	EC	108	9	8.33	44	40.74	55	50.93	2.59
	CF	107	39	36.45	46	42.9	22	20.56	3.22

Source: Prepared by the authors

To carry out the calculations needed to validate the experimental study, each level of development was assigned a numerical value: high level - 4 points; sufficient - 3 points; satisfactory - 2 points. The low level was not diagnosed. The arithmetic mean of the development of ethnopedagogical competence of elementary school teachers was calculated for each group and in each phase of the study.

The comparative analysis of the development of ethnopedagogical competence between elementary school teachers in the CE and CF phases (Table 1) shows that the GE students were

more effective in developing their ethnopedagogical competence, as evidenced by the dynamics of the average indicators.

During the formative experiment, the CG students' average indicators increased from 3.60 to 3.69 points (an improvement of 0.09 points). On the other hand, in the EG students, the parameter rose from 3.57 to 4.16 points (an increase of 0.59 points), representing a difference of 0.5 points more compared to the CG.

The analysis also showed that students classified at the satisfactory level (below average) remained in both categories. Considering the significant positive results observed in the GE, improving the professional training of elementary school teachers, based on our methodology, is essential.

To ensure the accuracy of the changes in ethnopedagogical competence after the pedagogical experiment, we used Pearson's χ^2 criterion. Table 2 shows a comparison of the distributions of students in the EG and CG, based on the development of ethnopedagogical competence.

Table 2 - Comparison of the characteristics of the group distributions according to Pearson's χ^2 criterion

Group - Control stage	GC - CE	GC - CF	GE - CE	GE - CF
GC - CE	-	$\chi^2_{emp} = 5.39 < \chi^2_{cr} = 9.21$	$\chi^2_{emp} = 3.81 < \chi^2_{cr} = 9.21$	$\chi^2_{emp} = 22.88 > \chi^2_{cr} = 9.21$
GC - CF	$\chi^2_{emp} = 5.39 < \chi^2_{cr} = 9.21$	-	$\chi^2_{emp} = 4.55 < \chi^2_{cr} = 9.21$	$\chi^2_{emp} = 19.34 > \chi^2_{cr} = 9.21$
GE - CE	$\chi^2_{emp} = 3.81 < \chi^2_{cr} = 9.21$	$\chi^2_{emp} = 4.55 < \chi^2_{cr} = 9.21$	-	$\chi^2_{emp} = 18.24 > \chi^2_{cr} = 9.21$
GE - CF	$\chi^2_{emp} = 22.88 > \chi^2_{cr} = 9.21$	$\chi^2_{emp} = 19.34 > \chi^2_{cr} = 9.21$	$\chi^2_{emp} = 18.24 > \chi^2_{cr} = 9.21$	-

Note: the significance level is $p = 0.05$.
Source: Prepared by the authors

The empirical values of Pearson's χ^2 fall in the area of significance ($p < 0.05$), which supports the rejection of hypothesis H0 and the acceptance of hypothesis H1 for the EG. Thus, the empirical distributions of the EG and CG students with regard to the levels of development of ethnopedagogical competence after the experiment show significant variations.

Discussion

In summary, the experiment shows that, in the current scenario, modernizing the educational system through information technologies is a promising path. It is, therefore, essential that elementary school teachers integrate digital technologies into their practice in order to optimize the effectiveness of the educational process. In our view, the methodology for training elementary school teachers, aimed at building students' knowledge of the traditions and characteristics of the Kazakh people through digital technologies, should be structured around four interdependent components.

The first component, which is at the heart of the methodology, is related to the fundamental knowledge of elementary school teachers in the areas of psycho-pedagogy, general culture, and compulsory professional subjects, acquired by mastering the essential content stipulated by the professional training program (Syahid *et al*., 2019). During the study of the curricular modules, the educational process incorporates elements of digital technology (Belous *et al*., 2021; Rabadanova *et al*., 2022).

The second component covers all forms of pedagogical practice, with an emphasis on preparing teachers to use digital technologies in primary ethnopedagogical teaching.

Then, the third component involves cognitive work, research, and autonomous educational practice by students, ensuring integration between theoretical and practical training for the application of digital technologies in primary education. (Evtykhova; Burkova, 2022; Nikolaeva; Kotliar; Nikolaev, 2023). This component consists of innovative teaching activities to develop creative skills and improve individual teaching styles.

Finally, the fourth component concerns the specialized course "*Digital Technologies in the Development of Ethnopedagogical Competence*", the central aim of which is to prepare students to deal with the challenges of initial ethnopedagogical education, exploring the traditions and characteristics of the people of Kazakhstan, with the support of digital technologies.

In this way, primary education professionals with enhanced ethnopedagogical competence (Volkov, 2005) are able to deftly handle knowledge about traditional education and the socialization processes present in national pedagogy, as well as typical children's toys and games, traditional crafts and trades, family culture and traditional pedagogical approaches aimed at children's development. They recognize and apply the educational value of the mother tongue, as well as rituals, customs, traditions, celebrations, symbols, and popular artistic manifestations, in the context of contemporary educational institutions (Zhuzeyev *et al*, 2024a).

Final considerations

The issue of training elementary school teachers, based on Kazakh ethnopedagogical characteristics and the pedagogical traditions of this culture, with the incorporation of digital technologies in the process of educational digitization, has become progressively more relevant. Integrating digital technologies into teaching enables greater agility in disseminating information, extending its reach, automating repetitive processes, and expanding opportunities for creative activities and individual tasks. It also requires educators to master both the theoretical and practical aspects of using contemporary digital technologies and develop fundamental skills for practicing their profession.

This study does not explore all the dimensions of the professional training of elementary school teachers in the context of ethnocultural educational environments. Future research could focus on identifying effective methodological strategies for using digital technologies to pass on knowledge about the traditions and cultural characteristics of the Kazakh people to elementary school pupils.

REFERENCES

ABDULLINA, L. B.; PETROVA, T. I.; BERZINA, R. F. Etnokulturnoe vospitanie podrastaiushchego pokoleniia na sovremennom etape [Ethno-cultural education of the young generation at the present stage]. **Mir nauki, kul'tury, obrazovaniya**, [*s. l.*], n. 2, v. 69, p. 5-6, 2018.

AIPOVA, A. *et al*. Influence of the content of the ethnic component in pedagogical education on the development of ethnopedogical competence in future teachers. **European Journal of Contemporary Education**, Washington, DC, v. 12, n. 4, p. 1113-1129, 2023. Available at: https://doi.org/10.13187/ejced.2023.4.1113. Accessed in:8 nov. 2024.

AKCHULPANOVA, R. K. **Podgotovka budushchikh uchitelei k dukhovno-nravstvennomu vospitaniiu shkolnikov na osnove etnokulturnogo podkhoda** [Preparing future teachers for the spiritual and moral upbringing of schoolchildren on the basis of the ethno-cultural approach]. Ufa: Gilem, 2015.

ARSTANGALEEVA, G. F.; TEZINA, M. N.; SLOBODCHIKOVA, S. M. Otsenka sformirovannosti tsifrovykh kompetentsii pedagogicheskikh rabotnikov [Evaluating educators' digital competence]. **Domestic and Foreign Pedagogy**, [*s. l.*], v. 1, n. 3, p. 140-155, 2021. Available at: https://doi.org/10.24412/2224-0772-2022-84-140-155. Accessed in:8 nov. 2024.

BAKLANOVA, G. A. Struktura professionalnoi kompetentnosti uchitelia nachalnykh klassov v oblasti ispolzovaniia tsifrovykh obrazovatelnykh resursov [The structure of the professional

competence of primary school teachers in the use of digital educational resources]. **Pedagogical Review**, [*s. l.*], n. 1, v. 7, p. 14-20, 2015.

BELOUS, O. V. *et al*. Russian teachers in the digital transformation of general education: Challenges, expectations, and prospects. **Nuances**: Estudos sobre Educação, Presidente Prudente, v. 32, n. 00, p. e021016, 2021. Available at: https://doi.org/10.32930/nuances. v32i00.9129. Accessed in:8 nov. 2024.

BINDYUKOVA, T. A.; MUDRAKOVA, O. A. Use of remote technologies in educational process as means of increasing interest in studying school subjects. **Contemporary Problems of Social Work**, [*s. l.*], v. 2, n. 2, p. 130-136, 2016. Available at: https://doi.org/10.17922/ 2412-5466-2016-2-2-130-136. Accessed in:8 nov. 2024.

BORONENKO, T. A.; FEDOTOVA, V. S. Obshchaia kharakteristika tsifrovoi kompetentnosti uchitelia nachalnogo obshchego obrazovaniia [General characteristics of the digital competence of a teacher in primary general education]. **Nauka i shkola**, [*s. l.*], n. 5, p. 72-84, 2022. Available at: https://doi.org/10.31862/1819-463X-2022-5-72-84. Accessed in:8 nov. 2024.

EVTYKHOVA, N. M.; BURKOVA, L. L. Nekotorye aspekty tsifrovizatsii v metodiko-matematicheskoi podgotovke budushchikh uchitelei nachalnykh klassov [Some aspects of digitalization in the methodological and mathematical training of future primary school teachers]. **Vestnik Majkopskogo Gosudarstvennogo Tehnologiceskogo Universiteta**, [*s. l.*], v. 14, n. 3, p. 66-74, 2022 Available at: https://doi.org/10.47370/2078-1024-2022-14-3-66-74. Accessed in:8 nov. 2024.

IVANKOVIĆ, I.; IGIĆ, I. Attitudes of parents of primary school students of the City of Zagreb on the use of ICT in distance learning during the COVID-19 pandemic. **Metodički ogledi**: Časopis za filozofiju odgoja, [*s. l.*], v. 28, n. 1, p. 39-62, 2021. Available at: https://doi.org/10.21464/mo.28.1.5. Accessed in:8 nov. 2024.

IZHBULDINA, L. I.; SINAGATULLIN, I. M.; GORNAIA, T. I. Osobennosti etnokulturnogo vospitaniia uchashchikhsia nachalnoi shkoly [Features of ethno-cultural education of primary school students]. **Pedagogical Journal**, [*s. l.*], v. 13, n. 1A, p. 38-44, 2023.

KARIMOVA, D. *et al*. The concept of "Child" and its historical and legal description. **Cuestiones Políticas**, Zulia, v. 40, n. 74, p. 863-879, 2022. Available at: https://doi.org/ 10.46398/cuestpol.4074.48. Accessed in:8 nov. 2024.

KRYUCHEVA, Y.; TOLSTOUKHOVA, I. Modern ways of learning as a means of enhancing the cognitive activity of students. **Nuances**: Estudos sobre Educação, Presidente Prudente, v. 34, n. 00, p. e023006, 2023. Available at: https://doi.org/10.32930/nuances.v34i00.9963. Accessed in:8 nov. 2024.

LOUDOVA, I. Competence of an ICT teacher concerning didactic and methodological support in teaching ICT at primary school. *In*: PANG, C. *et al*. (ed.). **Learning technologies and systems**. Cham: Springer, 2020. p. 70-81. Available at: https://doi.org/10.1007/978-3-030-66906-5_7. Accessed in:8 nov. 2024.

MAMLEEVA, D. M. *et al*. Polikulturnoe vospitanie uchashchikhsia na osnove natsionalno-kulturnykh traditsii [Polycultural upbringing of students based on national cultural traditions]. **Vestnik Bashkirskogo universiteta**, [*s. l.*], v. 16, n. 4, p. 1429-1431, 2011.

MUKHAMETZHANOVA, A. O.; TLEUBERLINOVA, E. B. Pedagogicheskie usloviia formirovaniia natsionalnykh tsennostei u uchashchikhsia nachalnykh klassov [Pedagogical conditions for the formation of national values among primary school students]. **Bulletin of Ablai Khan KazUIRandWL, Series "Pedagogical Sciences"**, [*s. l.*], v. 72, n. 1, 2024. Available at: https://doi.org/10.48371/PEDS.2024.72.1.035. Accessed in:8 nov. 2024.

MUKHTAROVA, S. M. **Etnokulturnoe obrazovanie budushchikh pedagogov**: Poisk i reshenie problemy [Ethno-cultural education of future teachers: The search and solution of the problem]. Monograph. Karaganda: Sanat, 2008.

MUKHTAROVA, S. M.; MUSKHANOVA, I. V. Etnopedagogicheskie aspekty vospitaniia lichnosti v traditsiiakh kazakhskogo i chechenskogo narodov [Ethnopedagogical aspects of personality upbringing in the traditions of Kazakh and Chechen peoples]. **Bulletin of the Karaganda University, Pedagogy Series**, [*s. l.*], n. 4, v. 84, p. 62-71, 2016.

NIKOLAEVA, E.; KOTLIAR, P.; NIKOLAEV, M. Revisiting traditional educational practices in the age of digitalization. **Revista on line de Política e Gestão Educacional**, Araraquara, v. 27, n. 00, p. e023057, 2023. Available at: https://doi.org/10.22633/rpge. v27i00.18527. Accessed in:8 nov. 2024.

NIKULINA, T. V.; STARICHENKO, E. B. Informatizatsiia i tsifrovizatsiia obrazovaniia: Poniatiia, tekhnologii, upravlenie [Information and digital technologies in education: Concepts, technologies, management]. **Pedagogical Education in Russia**, [*s. l.*], n. 8, p. 107-113, 2018. Available at: https://doi.org/10.26170/po18-08-15. Accessed in:8 nov. 2024.

NOSKOVA, N. V.; PETROVA, L. A. Tsifrovaia kompetentnost sovremennogo pedagoga: Ot teorii k innovatsionnoi praktike [Digital competence of modern educator: From theory to innovative practice]. **Problemy sovremennogo pedagogicheskogo obrazovaniya**, [*s. l.*], n. 68-4, p. 45-49, 2020.

POTAPOV, D. A. Personal creativity study: Structure, levels, indicators. **Anthropological Didactics and Upbringing**, [*s. l.*], v. 4, n. 4, p. 92-101, 2021.

RABADANOVA, R. *et al*. Motivational support as a factor of formation of students' professional competence in the conditions of digitalization of education. **Revista on line de Política e Gestão Educacional**, Araraquara, v. 26, n. 2, p. e022052, 2022. Available at: https://doi.org/10.22633/rpge.v26iesp.2.16547. Accessed in:8 nov. 2024.

RAKHINSKY, D. V. *et al*. New approaches in educational processes based on informatization and high communication technologies. **Nuances**: Estudos sobre Educação, Presidente Prudente, v. 32, n. 00, p. e021012, 2021. Available at: https://doi.org/10.32930/nuances. v32i00.9125. Accessed in:8 nov. 2024.

SHICHKIN, I. *et al*. Development of higher education in the context of digitalization: Developing an effective socio-economic integration model. **Revista Conrado**, [*s. l.*], v. 20, n. S1, p. 142-147, 2024a.

SHICHKIN, I. *et al*. Perception of the flipped classroom model by students in the process of studying humanities disciplines. **European Journal of Contemporary Education**, Washington, DC, v. 13, n. 2, p. 423-433, 2024b. Available at: https://doi.org/10.13187/ejced.2024.2.423. Accessed in:8 nov. 2024.

SOBOLEVA, E. V. *et al*. Formirovanie tsifrovoi gramotnosti budushchikh pedagogov sredstvami oblachnykh tekhnologii [Formation of digital literacy of future teachers using cloud technologies]. **Perspectives of Science & Education**, Voronezh, v. 54, n. 6, p. 505-520, 2021. Available at: https://doi.org/10.32744/pse.2021.6.34. Accessed in:8 nov. 2024.

SYAHID, A. A. *et al*. ICT competences of primary school teachers. **Journal of Physics**: Conference Series, Bristol, v. 1318, n. 1, p. 012148, 2019. Available at: https://doi.org/10.1088/1742-6596/1318/1/012148. Accessed in:8 nov. 2024.

UKOLOVA, L. I.; AFANASYEV, V. V. Pedagogical potential of the application of computer educational programs in the lessons of fine arts. **Anthropological Didactics and Upbringing**, [*s. l.*], v. 6, n. 1, p. 21-30, 2023.

VOLKOV, G. N. Universalizm etnopedagogiki (dispersnaia etnopedagogika) [The universalism of ethnopedagogy (dispersed ethnopedagogy)]. *In*: ETNOPEDAGOGIKA V SISTEME OBRAZOVANIIA: OPYT, PROBLEMY I PERSPEKTIVY, 1., 2005, Arytau. **Proceedings** […]. Arytau: [*s. n.*], 2005. p. 7-12.

YAKOVLEVA, E. N. *et al*. Problema razvitiia tsifrovoi kompetentnosti pedagogov nachalnogo obshchego obrazovaniia, prinadlezhashchikh k starshemu pokoleniiu [The development of digital competence of primary school teachers of older generation]. **Innovatsionnye proekty i programmy v obrazovanii**, [*s. l.*], v. 73, n. 1, p. 46-55, 2021.

ZHUZEYEV, S. *et al*. Influence of academic relations between university teachers and students on educational process efficiency. **Revista Conrado**, [*s. l.*], v. 20, n. 96, p. 640-647, 2024b.

ZHUZEYEV, S. *et al*. Training of primary education teachers taking into account the traditions of pedagogic education in Kazakhstan. **Revista Conrado**, [*s. l.*], v. 20, n. 96, p. 316-324, 2024a.

CRediT Author Statement

☐ **Acknowledgements**: Not applicable.

☐ **Funding**: Not applicable.

☐ **Conflicts of interest**: The authors declare no conflicts of interest.

☐ **Ethical approval**: All data was collected and analyzed in accordance with ethical guidelines.

☐ **Availability of data and material**: Not applicable.

☐ **Author contributions**: All the authors contributed equally to this work.

Processing and editing: Editora Ibero-Americana de Educação.
Proofreading, formatting, standardization and translation.

---

[i] Humanitarian and Pedagogical Institute, Korkyt Ata Kyzylorda University, Kyzylorda - Kazakhstan. Senior Lecturer, Master of Humanities, Educational Program "Kazakh Language, Literature and Journalism".

[ii] Institute of Pedagogy and Traditional Art, Korkyt Ata Kyzylorda University, Kyzylorda - Kazakhstan. Doctoral degree student, Department of Pedagogy, Psychology, and Teaching Methods.

[iii] Korkyt Ata Kyzylorda University, Kyzylorda - Kazakhstan. Senior Lecturer, Candidate in Pedagogical Sciences, Department of Foreign Languages and Translation.

[iv] Institute of Pedagogy and Traditional Art, Korkyt Ata Kyzylorda University, Kyzylorda - Kazakhstan. Doctoral degree student, Department of Traditional Art and Choreography.

[v] Abai Kazakh National Pedagogical University, Almaty - Kazakhstan. Senior Lecturer, Doctoral degree, Department of Early Childhood Education.

[vi] Institute of Pedagogy and Traditional Art, Korkyt Ata Kyzylorda University, Kyzylorda - Kazakhstan. Doctoral degree student, Department of Traditional Art and Choreography.