

Abstract
for the dissertation work
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for the degree of Doctor of Philosophy (PhD)
in the educational program 8D01702- Foreign language: two foreign
languages on the topic "Digital technologies in the training of future English
teachers in the context of modernization of higher education"

The relevance of the research stems from global changes in the field of digitalization, which are affecting all key spheres of public life. To prepare individuals who meet the requirements of the digital age and are ready for the modern needs of society, it is necessary to replace traditional methods of knowledge acquisition with a more effective organization of students' cognitive activity in the educational process.

The importance of this problem is evidenced by several factors: *Firstly*, digital technologies are a significant contributor to the country's economic development. Without information technologies, it is impossible to improve the quality of life of the population. In this regard, according to the e-government index, the goal is to become one of the 15 most advanced countries in the world in terms of digital competitiveness. Although we lead in the CIS countries, we are lagging globally.

Secondly, considering the national project "*Quality education is a guarantee of a successful nation for 2023-2029*" in the country, which was adopted in the education system. This state project contains a component of the digitalization of education: the development of EdTech, the introduction of artificial intelligence and big data in education management, and digital competencies of teachers".

In addition, the state program "*The concept of development of higher education and science in the Republic of Kazakhstan for 2023-2029*" as the main direction, the priority tasks of these programs will be the development of human capital, modernization and digitalization of scientific infrastructure, as well as equipping the educational organization with a modern material and technical base. All these changes, which are necessary for the country to become internationally competitive, underscore the need for a significant transformation of all components of the higher education paradigm.

Thirdly, the basis was the resolution and concept of the Government of the Republic of Kazakhstan dated March 28, 2023, No. 269, "*On approval of the Concept of Digital Transformation, development of information and communication technologies for 2023-2029, provided for in the Republic of Kazakhstan*".

Fourthly, the law on "mass media" was considered, aimed at digitalizing higher education and developing digital technologies. This dissertation is funded by the

Republic of Kazakhstan "documents on the training of teaching staff for the introduction of AI on the approval of the Concept of Artificial Intelligence development for 2024-2029", taking into account the possibilities of digital technologies and artificial intelligence related to protection under the "Zhas Galym" project legislative documents, as well as the latest documents of the President of the Republic of Kazakhstan K. K. Tokayev "Kazakhstan in the era of artificial intelligence: current problems and their solution through radical digital changes".

The above-mentioned documents emphasize the importance of organizing higher education to acquire skills and competencies that enable independent study and achieve the appropriate level of education. The development of digital competence based on it has become an urgent issue on the agenda, as it is necessary to develop future specialists who are comprehensively compatible with digital technologies.

At the present stage, considering the need to train future specialists who can work effectively in the context of digital transformation in society and education, the development of digital competence is a priority area. Thus, **the relevance of this dissertation research** lies in the need to resolve contradictions associated with the methodological support for the effective use of digital technologies in training future English Language teachers, in accordance with program and regulatory documents, as well as the educational standards of Higher Education.

The above works have high theoretical and practical significance; However, despite this, the problem of using digital technologies in the training of future English teachers remains insufficiently investigated.

As a result of a comprehensive differentiation of scientific literature sources depending on the research topic, we have identified the following **contradictions** between:

1. Between an increasing need for the use of digital technologies in the training of future English teachers, and an insufficient development of theoretical and methodological foundations for their integration into the educational process.

2. The growing demand for improving the digital competencies of English language teachers and the shortage of high-quality digital resources providing open access to foreign language education.

3. Between the requirements of modernization of higher education, involving the development of innovative methodological approaches, and the lack of a holistic model for the formation of digital competencies of future English teachers.

The solution of the above contradictions determined the proposed **research problem** and prompted us to choose the topic "Digital technologies in the foreign language training of future English teachers in a foreign language in the context of the modernization of higher education."

Thus, the relevance of this dissertation research lies in resolving the contradictions between methodological support for the effective use of digital technologies in developing the digital competencies of future English teachers, as required by program and regulatory documents of educational standards for higher education.

The aim of the research is to develop, substantiate, and experimentally test a pedagogical system for the formation of digital competence of future English teachers in the context of modernization of higher education.

The object of the research is the process of professional training for future English language teachers within the higher education system.

Subject of the research: digital competence of future English language teachers (as a result of the integration of digital technologies into the professional training process)

Research hypothesis: if the pedagogical conditions for developing digital competence - based on the designed pedagogical model - are identified and implemented in the process of training future English teachers, their level of digital competence will significantly increase, *as* these conditions contribute to developing their readiness to use digital technologies effectively in professional practice and improve the overall quality of their training.

Research objectives:

1. To analyze the theoretical foundations of using digital technologies in the context of higher education modernization and to clarify the key concepts of the research.

2. To study and summarize the foreign experience of the formation of digital competence of teachers and to determine the possibilities of its adaptation to the training of future English teachers.

3. To develop a pedagogical model of digital competence of future English language teachers in the context of the modernization of higher education.

4. To determine the pedagogical conditions that ensure the effectiveness of the formation of digital competence of future English language teachers

5. To conduct an experimental verification of the effectiveness of the developed pedagogical model and the identified conditions for the formation of digital competence

The theoretical basis of the research includes works on:

- research in the field of the use of digital technologies in the pedagogical process of educational institutions (S. V. Titova, Manuel Castels, Nicholas Negroponte, I. V. Robert, E. S. Polat, V. M. Monakhov, Lev Manovich, S. Paper, V. A. Pozdnyakov, M. Vorscher, A. I. Tazhigulova, G. K. Nurgalieva, B. J. Akhmetova, M. B. Ashimova, D.M. Dzhusubalieva, A. Kurakbayeva, A.D. Shildebekova, A.R. Nurgabdeshev, A.D. Omar, and others).

- digitalization of foreign language education in Kazakhstan, integration of digital technologies into the educational process: A. T. Chaklikova, G. K. Nurgalieva, D. M. Dzhusubalieva, A.I. Tazhigulova, E. V. Artykbayeva, A. K. Mynbayeva, R.R.Takhmazov, etc.;

- formation of digital competence of teachers and the use of digital technologies in the educational process (J. Dewey, J. Piaget, Manuel Castells, Nicholas Negroponte, M. Lev, B. J. Akhmetova, M. B. Ashimova, A. Kurakbayeva, A.D. Shildebekova, G. K. Nurgalieva, I. V. Robert, E.S. Polat, etc.);

- theories of the competence approach (V. V. Serikov, A.V. Khutorskoy, I.A. Zimnaya, J. Redecker, etc.)

- digital educational environments (A. A. Andreev, E.S. Polat, E.V. Bondarevskaya, O.V. Spirina, V. V. Gruzdev, M. Fullan, Ch. Redecker, L. Laurillard, A. Bates, etc.).

Sources of research. The sources of the research are the scientific works of philosophers, educators and psychologists on the research problem; official legislative documents adopted in the Republic of Kazakhstan (the law on education, programs of higher compulsory professional education, the concept and program of informatization of education, the program of digital Kazakhstan); regulatory documents of the Ministry of Education and Science of the Republic of Kazakhstan (standard curricula, textbooks and educational manuals, etc.); the best practices of teachers, as well as the pedagogical and research experience of the dissertation.

The leading idea of the study is that the formation of digital competence of future English teachers is effective with the targeted introduction of digital technologies adapted to the educational context of Kazakhstan."

The scientific novelty of the dissertation research is as follows:

The content is revealed, and key concepts are clarified. The author's definitions of the concepts "digital technologies" and "digital competence of a future English teacher" are given.

The foreign experience of forming digital competence in teachers and models of its development (including the DigCompEdu model) is systematized and generalized, making it possible to adapt them to the Kazakh educational context.;

The pedagogical system for developing digital competence in future English language teachers is theoretically substantiated.

A pedagogical model for developing digital competencies in future English teachers during their higher education training has been developed.

The pedagogical conditions that ensure the effectiveness of the formation of digital competence based on the integration of digital technologies into the educational process have been identified.

Thus, the novelty of the work lies not in the general topic of digitalization of education, but in a scientifically based strategy for adapting international approaches and verifying it in the Kazakh realities of English teacher training.

The theoretical significance of this research lies in its contribution to the development of the theory of professional training for English teachers in a digital educational environment.

The practical significance of the research lies in the development and implementation in the educational process:

- the electronic textbook *“Digital Technologies for English Teachers in Higher Education”*.

- the massive open online course (MOOC) *“Digitalization of Foreign Language Education”*, hosted on the platform of Karaganda National Research University named after Academician Ye.A. Buketov.

- the massive open online course (MOOC) *“Digital Technologies and Tools for Future English Teachers”*, hosted on the *Smart Assistant* platform of Karaganda National Research University named after Academician Ye.A. Buketov.

The research results have practical significance for the system of higher pedagogical education. The developed materials and products can be used in the system of higher pedagogical education, in advanced training courses for English language teachers, and in the development of academic disciplines related to digital pedagogy.

The reliability and validity of the results are ensured by the methodological and theoretical orientation of the dissertation research, the alignment of the research content with the scientific framework, the planning of experimental work, and the application of mathematical methods in data analysis.

The main provisions submitted for defense:

Theoretical and methodological foundations of the formation of digital competence of future English teachers, including the analysis of domestic and foreign approaches, as well as the author's definitions of the concepts of «digital technologies» and «digital competence of a future English teacher».

2. Systematized and adapted foreign experience in the formation of digital competence of teachers, which determined the directions of using effective practices in the training of future English teachers.

3. A model for the formation of digital competence of future English teachers, based on the adaptation of the European DigCompEdu model to the Kazakh context and reflecting its structure, levels, and components.

4. Pedagogical conditions that ensure the effectiveness of the process of forming the digital competence of future English teachers in the educational process of the university.

5. The results of an experimental verification of the effectiveness of the developed model and the pedagogical conditions for the formation of digital competence of future English teachers, which confirmed the positive dynamics of indicators in terms of motivational, substantive, and organizational components.

Research methods.

Theoretical methods:

1. analysis and systematization of psychological, pedagogical, and methodological literature on the problem of digitalization of education.
2. analysis of regulatory and program documents regulating the process of digital transformation of higher education (government programs, educational standards, standard curricula, etc.).
3. Comparative analysis of domestic and foreign experience;
4. Generalization, modeling, induction and deduction, abstraction, forecasting, and theoretical substantiation of the obtained results.

Empirical methods:

1. monitoring the learning process, questioning and interviewing teachers and students.
2. pedagogical experiment (ascertaining, forming, and control stages).
3. Analysis of curricula, educational programs, digital learning platforms, and products used in the process of training future English teachers.

Diagnostic and evaluation methods:

1. Determining the levels of digital competence of future English language teachers;
2. expert assessment of the content and research tools.
3. The use of valid diagnostic techniques and indicators of digital competence, mathematical and statistical methods.

Approbation and implementation of research results.

-participation in international scientific and practical conferences:

Sarzhanova G.B., Abdrakhmanova S.T. The possibilities of online resources and digital technologies in ESL education. Prospects and new trends in the development of foreign language education (November 29-30, 2023): Scientific electronic publication. - Karaganda: Publishing house of the Karaganda University of academician Ye. A. Buketov, 2023, pp. 78-85.

Abdrakhmanova S.T., Sarzhanova G.B. Effective use of digital technologies in the pedagogical activity of an English Teacher. Young Researcher: Challenges and Prospects CCXL International Scientific and Practical Conference No.45(240), Moscow, 2021, pp. 232-235.

Abdrakhmanova S.T., Sarzhanova G.B., Shokatayeva R. New Practices and Challenges in Integrating AI-Based Digital Technologies for English Language

Teachers. Proceedings of the 11th International Scientific Conference «Theoretical Hypotheses and Empirical Results». Oslo, Norway, 2025.- 65-71.

Abdrakhmanova S.T. English Teachers' Preferences for Using Digital Technologies and AI-Based Search Engines in Kazakhstan. Proceedings of the 11th International Scientific Conference «Modern scientific technology». Stockholm, Sweden, 2025. - 126-132.

-publication in scientific journals recommended by the Science and Higher Education Quality Assurance Committee of the Ministry of Science and Higher Education of the Republic of Kazakhstan:

Abdrakhmanova S.T., Sarzhanova G.B. Digital Technologies in the Training of Future English Teachers in conditions of distance learning // Bulletin of the Karaganda University. – Pedagogy Series. – №3 (107). – 2022. – P. 1-8.

Sarzhanova G.B., Abdrakhmanova S.T., The use of digital technologies in the process of training future foreign language teachers // Bulletin of the Karaganda University. – Pedagogy Series. – №2 (110). – 2023. – P. 183-190.

Abdrakhmanova S.T. Readiness of Teachers to Use Intelligent Search Systems in the Digital Educational Environment // Bulletin of the Karaganda University. – Pedagogy Series. – №3 (110). – 2025. – P. 1-9

-publication in a journal indexed in the Scopus and Web of Science databases:

Sarzhanova G.B., Abdrakhmanova S.T.*, Akbayeva G.N., Tleuzhanova G.K. Digital Learning Environment in Training Future Kazakhstani English Teachers. Forum for Linguistic Studies. – 2024. – V. 6(5), 280–286 pp.

Abdrakhmanova S.T., Sarzhanova G.B. Digital Technology Trends Among English Teachers in the Condition of Modernization of the Higher Education (2022). SIST 2022 -2022 International Conference on Smart Information Systems and Technologies, Proceedings, 2022.

The structure of the dissertation consists of an introduction, two chapters, a conclusion, a list of references, and appendices.

The first chapter, “Theoretical foundations of digital technologies in teaching foreign languages in the condition of modernizing higher education,” analyzed foreign and domestic scientific works and revealed the chronology of the development of digital technologies in research conducted within the framework of the research topic. The best world practices in the use of digital technologies are considered, as are various models for the development of digital competencies among English teachers, including those aimed at adapting the European framework to the Kazakh context. Pedagogical conditions for the effective use of digital technologies are also determined. In addition, the author's definitions of the concepts of “digital technology” and “digital competence of the future English teacher” are given.

The second chapter, “**Experimental work on the formation of digital competencies of future English teachers**” analyzes the results of experimental work on the use of the author's electronic manual and a massive open online course within the framework of the digital competence development model for English teachers and draws conclusions in accordance with the results obtained.

In conclusion, conclusions and recommendations are presented based on the results of the theoretical study of the issue examined in the dissertation and the experimental pedagogical work.

The appendix contains an act on the implementation of the results of the dissertation, an author's agreement on the implementation of a massive open online course "Digitalization of foreign language education" on the platform of the Karaganda National Research University named after Academician Ye.A. Buketov; a massive open online course "Digital technologies and tools for future English teachers" on the Smart assistant platform; certificates on entering information into the state register of rights to the electronic textbook "Digital Technologies for English Teachers in Higher Education" and the electronic textbook "Utilizing Intellectual Search Engines and AI-based smart technologies in Teaching Foreign Language".