### ANNOTATION

Dissertation for the degree of Doctor of Philosophy (PhD) in the educational program "8D01503 – Geography".

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# "The possibilities of distance learning technologies in the formation of research skills of students in the study of the geography of Kazakhstan"

**Relevance of research:** Distance learning technologies play an important role in the educational process, including the study of the geography of Kazakhstan. The use of innovative technologies for the formation of students' research skills includes the following aspects:

Access to information: The Internet provides access to lessons on the platform Joo.kz, information and video materials at any time and anywhere. The ability to replay lessons allows students to explore information independently, contributing to the development of their research skills.

Interactive educational platform: The use of virtual tours of geographical sites of Kazakhstan, interactive maps and educational games helps students explore the geographical features of their country and compare them with other regions.

Collaborative learning: Distance learning technologies give students the opportunity, regardless of distance, to collaborate and exchange information in a flexible manner, which contributes to the development of communication and collective skills in the process of working on group scientific projects.

Geoinformation Systems (GIS): The use of GIS in the study of the geography of Kazakhstan allows students to analyze spatial data, create maps and model geographical processes, developing analytical thinking and skills in solving geographical problems.

Individualization of learning: Distance learning technologies allow flexible adaptation of the educational process to the individual needs of students. Everyone can choose topics for research according to their interests and level of training.

Modern distance learning technologies occupy an important place in the education system, opening up new prospects for the formation and development of students' research skills. With the development of information technology and Internet resources, students gain access to electronic materials, maps, statistical data and visual resources. Electronic platforms provide real-time learning, as well as information exchange and discussion with teachers, which promotes active learning.

One of the important aspects of distance learning is the possibility of creating individual educational trajectories adapted to the level of knowledge and interests of each student. This contributes to the development of independence and research thinking necessary for a deep understanding of the geography of your country. In addition, distance learning technologies allow you to organize virtual expeditions, online projects and collective research, which develops communication skills and provides opportunities for applying knowledge in practice. Virtual expeditions, online projects and collective research not only make the learning process more exciting, but also allow students to work in a team, share their findings and build communication with classmates and teachers. It helps to develop skills of collaboration, critical thinking and creativity, which is very important for the modern educational environment. The use of technologies such as virtual reality can further enrich the distance learning experience, allowing students to "visit" different parts of the world, explore unique natural or cultural phenomena, which in turn stimulates their interest in the subjects they study. In conclusion, distance learning not only provides flexibility and accessibility to education, but also contributes to the development of key skills necessary for a successful life in modern society.

Thus, distance education technologies are instrumental in cultivating students' research skills by stimulating engagement, independence, and interest in the subject of Kazakhstan's geography.

**Purpose of the study:** To develop a methodology that fosters students' research skills through the use of distance education technologies in the study of Kazakhstan's geography.

**Research object:** The development of students' research skills within geographic education.

**Research subject:** Distance education technologies in the context of fostering research skills while studying Kazakhstan's geography.

#### **Research tasks:**

- Study the theoretical and methodological foundations of research skill development in geography education.
- Analyze the types and potential of distance education technologies in geographic education.
- Develop a methodology to enhance students' research skills through remote learning in Kazakhstan's geography.
- Evaluate the effect of distance learning technologies on research skills, presenting the results of practical experiments.

## The scientific novelty of this project lies in several key aspects:

1. Author's methodology: Development of an original methodology that includes modern interactive materials, online lessons and special tasks aimed at developing students' research skills. This technique helps to create an active learning environment that promotes deep understanding and analysis of the material being studied.

2. Integration of innovative technologies: The use of advanced technologies such as virtual maps, geographic information systems (GIS) and other digital tools to improve students' research skills. This allows not only to deepen knowledge, but also to develop practical skills of working with modern tools, which is especially important in the context of digitalization of education.

3. Empirical research: Conducting an evaluation study aimed at verifying the effectiveness of the proposed methodology and its impact on the formation of students' research skills. This may include an analysis of learning outcomes, feedback from students and teachers, and comparisons with traditional approaches.

4. Contextual analysis of the educational system of Kazakhstan: In-depth analysis of the features of the educational system in Kazakhstan, including access to

technology and educational resources. This research can help identify existing gaps and opportunities for improving the educational process, as well as adapt the methodology to the specifics of local conditions.

**Theoretical and practical significance:** The research expands scientific knowledge on distance education's potential in geographic education, providing practical recommendations and methodologies for leveraging distance learning to enhance students' research skills in studying Kazakhstan's geography.

#### Methodological foundations:

In recent years, a significant amount of research has appeared on various aspects of distance learning. The theoretical foundations and methodological features of the introduction of distance learning technologies into the educational process were studied by such authors as M. A. Sultanov, B.L. Tiyshbayev, E.S. Polat, E.S. Sergazinova, A.D. Ongarbayeva, A. Lionarakis, R. Garrison and others.

Distance learning (or online learning) is a type of education in which students and teachers interact from a distance using communication tools such as the Internet, video conferencing, e-mail and other technologies. Online learning allows you to acquire knowledge and skills without the need for physical presence, unlike traditional learning. Therefore, developing distance learning technologies should be based on fundamental research in the field of didactics. Various aspects of the educational process are devoted to the work of such authors as M. J. Aimova, A.K. Turgazy, A.A. Artyukhov, E.M. Ambartsumova, E.A. Kryuchkova, J.T. Clark, M. Simonyan, S.M. Vasek, S. Smaldino and others. The works of the authors of Kazakh textbooks and training manuals on the updated content of education K.D. Kaimuldinova, B. Sh. Abdimanapov, S. Abilmazhinova, R.A. Karatabanov were used.

Defining clear learning goals and objectives helps to structure the learning process and allows both students and teachers to focus on the end result. It is important to ensure a high level of interaction between the participants in the process. This can be achieved through the use of various content formats (video lectures, webinars, group projects) and teaching methods (discussions, role-playing games, case stages). The online format provides an opportunity to adapt learning to the needs of each student, which may include personalized assignments, a choice of research topics and a variety of assessment formats. Choosing the right technologies and platforms for distance learning is critically important. The usability, functionality and accessibility of the platforms affect the success of the educational process. An effective feedback system helps students understand their progress and improve their results. A variety of assessment methods, including formative and summative assessment, also play an important role. Creating a student community can increase motivation and improve learning outcomes. This includes organizing group work, chats and forums for communication. Taking into account the peculiarities of the distance format, it is important to take into account the psycho-emotional state of students and provide support in learning. Thus, the integration of the principles of didactics into the development of distance learning technologies makes it possible to create a more effective, accessible and flexible educational environment conducive to the qualitative assimilation of knowledge.

Modern society demands from a person flexibility of thinking and the ability to creatively solve problems. In a rapidly changing world, it is important to develop students' independent and critical thinking skills that will help them not only adapt, but also be active participants in change.

The formation of students' research skills includes the development of a number of competencies, such as the ability to pose questions, conduct analysis, search and process information, formulate and test hypotheses, and present the results of their research. These skills can be developed both through the learning process and outside it, for example, through projects, group work, research and competitions.

Research in the field of pedagogy emphasizes the importance of integrating research methods into the educational process. This may include the use of active forms of learning, such as project activities, problem-based learning, research tasks, etc. In addition, it is necessary to create conditions for the formation of students' interest in scientific activity and the possibility of practical application of the acquired knowledge.

The study of scientific and pedagogical literature shows an abundance of research aimed at developing scientific and methodological foundations for the formation of students' research skills. The importance of research activities at the school was emphasized by such authors as Sabirova E.G., Veselova Yu.Yu., Tastemir U., Berdygulova G., Kendirbai A.M., Turganbayeva A.A. and others. The psychological foundations of the organization of educational and research activities of children of different ages are described by A.N. Poddyakov, A.I. Savenkov, O.V. Muromtseva and others.

Theoretical, didactic and methodological foundations for the development of students' research activities are presented in the works of L.A. Kazantseva, G.V. Makotrova, E.A. Rumbesht, M. Maratkyzy, K.I. Omarova, J.T. Suyindikova, G.K. Baubekova. The didactic issues of creating and using a modern information and educational environment in teaching are considered in the works of O.A. Ilchenko, S. Papert, I.V. Robert and others.

## **Principles proposed for validation:**

• The methodology allows students to acquire knowledge at a convenient time, improve it, fill in gaps, developing research skills. Students can study the material at a convenient time for them, which allows them to more effectively assimilate information and fill in knowledge gaps. It also contributes to the development of their research skills, as they can independently search for information and work on projects.

• Improves creative thinking, analysis skills, formulation and presentation of ideas. The technique contributes to the formation of critical thinking and analytical skills. Students learn not only to formulate their ideas, but also to present them, which contributes to the development of confidence and speaking skills.

• Creates conditions for studying the geography of the native land at any time. The opportunity to study the geography of their native land at any time helps students to better understand and appreciate their surroundings, as well as develop a sense of belonging to their region.

• Allows you to organize distance learning in emergency situations and with

the participation of students in educational and extracurricular activities. The organization of distance learning in emergency situations ensures the continuity of the educational process. It is also important to involve students in various academic and extracurricular activities, which can increase their motivation and interest in learning. In general, this technique is aimed at creating a more dynamic and interactive educational environment that promotes the diverse development of students.

**Reliability, approval and implementation of research results**. The main conclusions of the study, theoretical and practical results were discussed at international conferences and in scientific publications. During the research, 10 scientific papers were published, including 1 article in the journal included in the Scopus database, 3 articles in scientific publications recommended by the Committee for Quality Assurance in Education and Science of the Ministry of Education and Science of the Republic of Kazakhstan, 2 reports in the materials of international scientific and practical conferences held in Kazakhstan, 1 report published in the collection of the Congress "Geographical education" in Turkey. 1 workbook has been developed as a methodological guide, and an act on the implementation of 1 methodology has been received.

**The structure of the study:** The work consists of an introduction, three chapters and a conclusion. The volume is 146 pages, includes 9 tables, 19 illustrations and 2 appendices, literature sources - 216. The list of references contains various sources of information, including electronic and Internet resource.