

Annotation
to the dissertation work
by Olga Alexandrovna Andreyeva
for the degree of Doctor of Philosophy (PhD)
in the specialty 6D011900 – Foreign Language: Two Foreign Languages
on the topic «Formation of pre-service biology teachers’ readiness to use
English in professional activity»

The Relevance of the Research is determined by the changes taking place in Kazakhstani society, which directly affect the reform of the education system.

According to the key provisions of the Kazakhstan Development Strategy until 2050, education is considered a system-forming factor of development in the context of modern global civilization.

Since Kazakhstan joined the Bologna Process, the importance of trilingual education, which implies proficiency in Kazakh, Russian, and English, has significantly increased.

In this regard, special importance is attached to the content of secondary education, which is formed in accordance with the requirements of the state policy in the field of multilingualism. The main goal of this policy is to prepare individuals capable of intercultural interaction, proficient in three languages, and respectful of cultural diversity. Practical implementation is carried out through trilingual education: level-based mastery of Kazakh, Russian, and foreign languages, as well as teaching certain academic disciplines in these languages, regardless of the language of instruction.

The effective implementation of multilingualism principles at the school level determines the need for highly qualified pedagogical personnel who are not only proficient in three languages but also capable of applying them in professional activity. In this context, a special role is assigned to the higher education system, which is responsible for training specialists who meet the modern requirements of educational policy.

To accomplish the tasks related to the implementation of multilingual education, a comprehensive approach is required that encompasses all aspects of future teachers’ training. Particular importance in this process is attached to the training of pre-service biology teachers, since their professional and linguistic readiness largely determines the effectiveness of implementing the trilingual model of education in educational practice.

The initiative to introduce trilingual education in Kazakhstan opens new prospects while simultaneously presenting a serious challenge to the education system. It is aimed at aligning national priorities with international standards, ensuring sustainable development, competitiveness, and global recognition of Kazakhstani education.

At the same time, the problem of formation of pre-service biology teachers’ readiness to use English in professional activity remains insufficiently resolved at present. A number of **Contradictions** can be observed between:

– the society's need for pedagogical personnel with a high level of professional training who are capable of using English in professional activity, and the low level of readiness of most pre-service biology teachers to carry out this type of activity;

– the necessity of formation of pre-service biology teachers' readiness to use English in professional activity and the lack of a scientifically grounded model for the formation of this readiness within the framework of professional training at a university.

These contradictions have determined the research problem, which consists in defining the essence of pre-service biology teachers' readiness to use English in professional activity and in identifying the pedagogical conditions necessary for the formation of this readiness.

These contradictions have defined **the Research Problem**, which lies in identifying the nature of Pedagogical Sciences undergraduate students' readiness to use English in professional activities and in determining the pedagogical conditions necessary for the development of such readiness.

The Purpose of the Research is the theoretical justification and practical development of a model for formation of pre-service biology teachers' readiness to use English in professional activity.

The Object of the Research is the pedagogical process in higher education.

The Subject of the Research is pre-service biology teachers' readiness to use English in professional activity.

Research Hypothesis: If a model for formation of pre-service biology teachers' readiness to use English in professional activity is implemented into the university educational process, it will enhance the professional level of pre-service biology teachers, since it will create specific conditions for training competitive, highly qualified specialists who are proficient in English at a productive level and prepared to use it in professional activity.

In accordance with the purpose, object, subject, and hypothesis of the research, the following **Tasks** have been defined:

1. To clarify the essence and essential characteristics of pre-service biology teachers' readiness to use English in professional activity.

2. To determine the pedagogical conditions for formation of pre-service biology teachers' readiness to use English in professional activity.

3. To develop a model for formation of pre-service biology teachers' readiness to use English in professional activity.

4. To experimentally verify the effectiveness of implementing the model for formation of pre-service biology teachers' readiness to use English in professional activity.

Theoretical and Methodological Basis of the research consists of the principles developed in the works of domestic and foreign scholars in the fields of:

– pedagogy and methods of higher professional education (S.I. Arkhangelsky, N.V. Ippolitova, V.P. Kashirin, N.V. Kuzmina, V.S. Lazarev, V.V. Serikov, V.A. Slastenin, V.D. Shadrikov, and others);

– development of foreign language, multilingual, and trilingual education (B.A. Zhetspisbaeva, L.S. Syrymbetova, G.K. Tleuzhanova, A.T. Anisimova, N.D. Galskova, E.I. Passov, S.S. Kunangbaeva, D.N. Kulibaeva, and others);

– issues of foreign language learning within the framework of students' professional training (A. Abdrakhmanova, N.A. Yesimkhanova, U.I. Kopzhasarova, D.N. Asanova, A.K. Fridzon, A.Z. Ibatova, G.I. Bogin, A.A. Verbitsky, N.I. Gez, M.A. Davydova, M.K. Kabardov, G.A. Kitaigorodskaya, A.A. Leontiev, and others);

– modeling of the educational process (A.Ya. Armand, V.P. Bespalko, and others).

Sources of the Research are legislative acts and normative-legal documents regulating the content and organization of the educational process in the system of higher pedagogical education; fundamental works of domestic and foreign scholars in the fields of philosophy, pedagogy, psychology, and sociology, revealing the aspects of students' foreign language training; Internet information resources; educational, methodological, programmatic, and regulatory literature used in educational practice; as well as the author's personal teaching experience accumulated in the course of professional activity.

Research Methods are:

– theoretical methods: analysis of philosophical, psychological-pedagogical, and methodological literature on the research problem; analysis of previous dissertation studies; theoretical modeling; study of university documentation;

– empirical methods: pedagogical experiment, testing, questionnaires, surveys, interviews with teachers and students, observation, classroom visitations and analysis, study and generalization of pedagogical experience;

– mathematical methods for statistical processing of the experimental study results: Student's t-test for independent samples, Fisher's F-test (analysis of variance).

Stages and Procedure of the Research.

At the first stage (2018–2020), the state of the researched problem in pedagogical theory and practice was studied. An analysis of pedagogical, linguistic, and methodological literature on the research problem was conducted. The scientific framework of the dissertation and its basic concepts were formulated. The essence, structure, and content of the concept of pre-service biology teachers' readiness to use English in professional activity were identified. The pedagogical conditions for formation of the studied readiness were determined. An ascertaining experiment was conducted, confirming the relevance of the problem and the purpose of the research. The results of this stage were published in the article "Research of readiness of pedagogical specialties students to teach in English."

At the second stage (2020–2022), a model for formation of pre-service biology teachers' readiness to use English in professional activity was developed. The methodology and conditions for conducting the formative experiment were determined. An innovative didactic complex with program and methodological support was created. A formative experiment was conducted to test the proposed

hypothesis. The results of this stage were presented in the article “Preparing students for professional activities in English.”

At the third stage (2022–2024), the research material was generalized and conclusions were formulated. The research results were compiled in the form of a dissertation.

Research Base is NLC «Karaganda Buketov University».

Scientific Novelty lies in the fact that:

- the concept of readiness to use English in professional activity has been clarified as an integrative characteristic of personality;
- the pedagogical conditions for formation of pre-service biology teachers’ readiness to use English in professional activity have been identified;
- a model for formation of pre-service biology teachers’ readiness to use English in professional activity has been developed;
- the effectiveness of implementing the model for formation of pre-service biology teachers’ readiness to use English in professional activity has been experimentally verified.

The Theoretical Significance of the Research lies in the fact that:

- the essence of the concept of pre-service biology teachers’ readiness to use English in professional activity has been clarified, which expands scientific understanding of the structure of teachers’ readiness for professional activity involving the use of a foreign language;
- the pedagogical conditions for formation of pre-service biology teachers’ readiness to use English in professional activity have been identified, which specifies theoretical provisions concerning pedagogical support of the process of forming this readiness;
- a model for formation of pre-service biology teachers’ readiness to use English in professional activity has been developed, including an innovative didactic complex, which forms the theoretical basis for a systemic and comprehensive approach to the training of future teachers;
- the experimental verification has confirmed the compliance of the proposed model with the objectives of formation of pre-service biology teachers’ readiness to use English in professional activity, which creates a theoretical foundation for further research in the field of foreign language teaching methodology and professional teacher training.

The Practical Significance of the Research lies in the results of the experimental work, which confirm the effectiveness of implementing the model for formation of pre-service biology teachers’ readiness to use English in professional activity and its introduction into the educational process through program and methodological support, including:

- a syllabus for the course “Professionally Oriented Foreign Language (English)” for the educational program 6B01509 – Biology;
- a teaching and methodological manual titled “Professionally Oriented English. Biology”;
- an electronic teaching and methodological manual titled “Professionally Oriented English. Biology.”

This program and methodological support have been developed on the basis of interdisciplinary integration using Content and Language Integrated Learning (CLIL) technology, combined with stimuli aimed at fostering positive motivation and interest in using English in professional activity.

The Following Provisions Are Submitted for Defense:

1. Pre-service biology teachers' readiness to use English in professional activity is defined as a complex personal characteristic that includes positive motivation, linguistic competence, and professional communicative skills necessary for carrying out professional activity in English.

2. The pedagogical conditions for formation of pre-service biology teachers' readiness to use English in professional activity include: the use of stimuli aimed at developing positive motivation and interest in using English in professional activity; providing students with a comprehensive body of knowledge based on interdisciplinary integration; and practical mastery of English through the application of Content and Language Integrated Learning (CLIL) technology. Taken together, these conditions ensure the purposeful formation of the studied readiness as an integral process.

3. The model for formation of pre-service biology teachers' readiness to use English in professional activity includes the following components: goal-oriented, content-based, activity-based, diagnostic, and result-oriented. The developed model is characterized by a systematic organization of academic disciplines, teaching methods, tools, and forms of instruction, as well as by the integration of motivational, cognitive, and praxeological components of readiness. The effectiveness of the model is confirmed by its ability to purposefully form pre-service teachers' readiness, which distinguishes it from existing analogues through a comprehensive, personality-oriented approach to organizing the educational process.

4. The program and methodological support of the model for formation of pre-service biology teachers' readiness to use English in professional activity includes:

- a syllabus for the course “Professionally Oriented Foreign Language (English)” for the educational program 6B01509 – Biology;
- a teaching and methodological manual titled “Professionally Oriented English. Biology”;
- an electronic teaching and methodological manual titled “Professionally Oriented English. Biology.”

5. The experimental results have demonstrated a statistically significant increase (21.6%) in the level of formation of pre-service biology teachers' readiness, which confirms the effectiveness of the developed model for formation of pre-service biology teachers' readiness to use English in professional activity.

The Approbation and Implementation of the main provisions and results of the research were carried out in the form of scientific publications.

The main theoretical provisions and results of the research were discussed at the following international scientific and practical conferences: XV International Scientific and Practical Conference “Current Issues of Linguodidactics and

Methodology of Teaching Foreign Languages” (Cheboksary, 2018); VI International Scientific and Practical Conference “The World of Science Without Borders” (Tambov, 2019); IV International Scientific and Practical Conference “Global Science and Innovations 2019: Central Asia” (Astana, 2019); XVII International Scientific and Practical Conference “Trends in Modern Science” (Sheffield, 2021); XXIII International Scientific and Practical Conference “Strategic Issues of World Science” (Przemyśl, 2026).

The content of the dissertation research is reflected in 11 publications by the author, including: 2 articles in journals indexed in Scopus, 4 articles in journals recommended by the Committee for Quality Assurance in Science and Higher Education of the Republic of Kazakhstan (CQASHE RK), 5 publications in the proceedings of international scientific and practical conferences.

Additionally, a teaching and methodological manual titled «Professionally Oriented English. Biology» was designed and published in both print and electronic formats.

The Structure of the Dissertation is determined by the aim and objectives of the research, their logical coherence, sequence, and interrelation throughout the research stages. The dissertation consists of an introduction, two chapters, a conclusion, a bibliography, and appendices, and is illustrated with tables, diagrams, charts, and figures.