



UDC 378.016. 811
DOI: 10.58649/1694-8033-2025-3(123)-49-58

Received: 30.04.2025
Revised: 26.07.2025
Accepted: 05.09.2025

Features of interdisciplinary integration in the formation of future teachers' linguodidactic competence

Aisulu Bayalieva*

PhD in Pedagogical Sciences, Associate Professor
Jusup Balasagyn Kyrgyz National University
720033, 547 Frunze Str., Bishkek, Kyrgyz Republic
<https://orcid.org/0009-0000-4389-7856>

Samara Nurbekova

Senior Lecturer
Jusup Balasagyn Kyrgyz National University
720033, 547 Frunze Str., Bishkek, Kyrgyz Republic
<https://orcid.org/0009-0003-9449-7598>

Nazira Temirkan kyzy

Postgraduate Student
Jusup Balasagyn Kyrgyz National University
720033, 547 Frunze Str., Bishkek, Kyrgyz Republic
<https://orcid.org/0009-0009-4048-682X>

Abstract. Modern challenges in the system of pedagogical education require the introduction of innovative approaches to the formation of linguodidactic competence of future teachers. The aim of this article was to identify the features and potential of interdisciplinary integration in the process of forming linguodidactic competence on the basis of integrated educational technologies. The paper used the methods of theoretical analysis of scientific literature, comparison, contrast, synthesis, systematisation, as well as empirical methods, including observation, questionnaires, testing, survey, interview and pedagogical experiment. Based on the results of the study, the content aspects of interdisciplinary integration in teacher training were identified. The possibilities of CLIL (Content and Language Integrated Learning) technology as an effective means of integrating language and professional education were analysed. The experimental study, conducted on the basis of the Jusup Balasagyn Kyrgyz National University, showed a significant improvement in the indicators of linguodidactic competence in the experimental group. Thus, if before the experiment a high level of competence was demonstrated by 10% of students, after the introduction of the program based on CLIL this indicator increased to 70%. At the same time, the share of students with a low level of competence decreased from 60% to 0%. No such significant changes were observed in the control group. It was found that the use of CLIL contributes to the development of critical thinking, language and communication skills of students, as well as strengthening their intercultural competence. Interdisciplinary integration contributes to deeper learning of educational material, activation of students' cognitive activity and increasing their interest in learning. The practical significance of the study lies in the fact that the obtained results can be used in the development of integrative training courses and methodological materials in higher education institutions for the purpose of effective formation of linguodidactic competence of future teachers

Keywords: pedagogical education; integrated educational technologies; CLIL; language education; professional training; critical thinking; communication skills

Suggested Citation: Bayalieva, A., Nurbekova, S., & Temirkan kyzy, N. (2025). Features of interdisciplinary integration in the formation of future teachers' linguodidactic competence. *Bulletin of the Jusup Balasagyn Kyrgyz National University*, 17(3), 49-58. doi: 10.58649/1694-8033-2025-3(123)-49-58.



Copyright © The Author(s). This is an open access article distributed under the terms of the Creative Commons Attribution License 4.0 (<https://creativecommons.org/licenses/by/4.0/>)

*Corresponding author

■ INTRODUCTION

The educational space of the 21st century is characterised by globalisation, digitalisation and innovative changes. The transformation of content, technologies and learning objectives, especially in the higher professional education system, has placed new demands on education. The modern development of the education system requires future teachers to have comprehensive competencies (Kartashova & Plish, 2020). The formation of linguistic and didactic competence, especially in the processes of language teaching and education through language, remains a key issue for students of the teaching profession. In this context, interdisciplinary integration is seen as an important mechanism for updating the content, methods and technologies of education. There are a number of serious contradictions in the formation of the linguistic and didactic competence of future teachers. For example, higher professional education programmes do not place sufficient emphasis on the development of language teaching competencies. As a result, the integration of subject knowledge and language skills among students remains insufficient in the process of language learning. In addition, the modern educational paradigm requires a competency-based approach and aims at the comprehensive development of students' functional, cultural and language skills. However, despite these requirements, in most educational organisations, interdisciplinary integration is not fully implemented in the educational process. Although the potential of integrative technologies, such as CLIL (Content and Language Integrated Learning), especially in teacher training programmes, is widely known, the methodological and methodological support for their practical implementation remains insufficient.

Furthermore, although the structure of linguistic competence has been studied at the theoretical level and its main components have been identified, the mechanisms for forming these components in interdisciplinary relations have not always been clearly worked out. In practice, work in this area requires special training for teachers. However, in real-life conditions, many teachers, despite deep specialisation in the field, do not always possess the didactic and methodological skills necessary for the implementation of integrated teaching. Furthermore, despite the great potential for interdisciplinary integration in education, the methodological support, material and technical base, and teaching resources necessary for its effective implementation are insufficiently developed. This circumstance, in turn, negatively affects the process of forming linguistic and didactic competence and reduces its effectiveness. These and other contradictions necessitate a review of the educational model aimed at developing linguistic and didactic competence, its updating in line with modern requirements, and the systematic introduction of integrative teaching technologies.

In defining the theoretical and methodological foundations of professional competence, Z. Yakimova & V. Nikolaeva (2012) justified the need to improve the quality of higher education and adapt to the labour market by creating effective models for assessing competencies in the

education system. O. Romanova (2012) worked out a model for the formation of professional competence of a teacher, clearly defining its structural components and stages. The use of the model allows for the systematic improvement of the professional training of future teachers. As noted by A. Raimkulova (2016), the period of study at a university is a particularly important stage in the formation of a student's character, level of intelligence, worldview, and professional position. During this period, students change their value system and develop a professionally oriented self-concept. I. Matviienko (2022) paid particular attention to the development of critical thinking skills. E. Ibragimova & Z. Medzhitova (2019) examined the development of listening skills in primary school students through joint teaching of Russian and Crimean Tatar languages in the formation of interlingual integration and bilingual listening skills in primary grades. This demonstrates the effectiveness of integrating language lessons. With regard to the development of research competence through project technology, A. Golovchun (2021) analysed the methodology of using project activities in the development of research skills among foreign language teachers. The criteria for assessment and practical recommendations are also provided here.

Also, regarding the impact of CLIL technology on professional competence, M. Nartayeva *et al.* (2024) studied the development of professional competence among biology teachers using CLIL technology in a trilingual education setting. The formation of linguistic and language competences in a bilingual environment B. Dzusova & M. Slanova (2021) investigated the formation of language and linguistic skills of students in a multilingual environment. The study focused on the development of speaking and thinking skills. On the development of language teaching competence on an interactive basis N. Rubina (2012) proposed a methodology for developing the language teaching skills of foreign language teachers through interactive technologies M. Igolkina & V. Yazynina (2024) analysed the effectiveness of combining foreign language lessons with subjects in universities where foreign languages are not taught.

As shown by an analysis of scientific and pedagogical literature, the formation of future teachers' linguistic competence is a combination of long-term processes requiring a comprehensive approach. In the current case, language disciplines were integrated with subjects such as pedagogy, psychology, didactics, methodology, etc., providing a combination of theoretical knowledge and practical skills for students. By organising the content of education on an interdisciplinary basis, students perceived knowledge not in isolation, but in a coherent and contextual manner. This approach included not only language learning, but also communicative, cultural and didactic components. Taking into account linguistic and intercultural aspects in foreign language teaching is of particular importance in the practical work of future teachers. The authors of this study considered linguistic competence as a unified system of theoretical and practical training for future language teachers. It ensures the ability to communicate interpersonally

and interculturally. Interdisciplinary integration plays a special role in the development of this component. It provides conditions for effective, functional and contextual acquisition of knowledge by combining the content of several disciplines. The aim of the article was to provide a theoretical justification for the features of interdisciplinary integration in the formation of the linguistic competence of future teachers. Objectives: to analyse the concept of linguistic and didactic competence; to determine the place of interdisciplinary integration in the educational process.

■ MATERIALS AND METHODS

This study used experimental methods to evaluate the effectiveness of CLIL technology in developing the linguistic and pedagogical competence of future teachers. The theoretical basis of the study was scientific and methodological literature on pedagogy, linguistics and interdisciplinary integration. Scientific works on educational practice in Kyrgyzstan and foreign countries, internal training programmes of the Institute of Social Sciences and Humanities of the Jusup Balasagyn Kyrgyz National University and the Faculty of Kyrgyz Philology, as well as materials from practical classes were used as a reference base. During the study, the following general scientific methods of cognition were used: observation, questionnaires, testing, surveys, interviews, pedagogical experiments, and expert assessment. These methods were chosen because of the need for an objective comparison of the initial and final states of students' linguistic and didactic competence. For example, observation and questionnaires were used to determine students' attitudes towards learning, their interest in studying the language, and their independent work skills. Tests and control tasks made it possible to assess students' foreign language proficiency and subject knowledge. In-depth information was obtained through interviews and diagnostic seminars, and the results were subjected to qualitative analysis.

The study was organised in two main stages: assessment and development. The first stage involved assessing the students' initial level of knowledge and skills, as well as identifying discrepancies between the content of language training and professional profiles. In the second stage, a special educational programme was worked out, including elements of CLIL technology, which was tested in groups PiP-1-24 and KTA-2-24. This programme consisted of 8 academic hours, in which English-language texts on educational organisations, culture and pedagogical concepts were used. Methodological models developed by other authors were used as a conceptual basis, in particular, integration models based on CLIL technology (Marsh, 2012). An adapted version of these models, adapted to the Kyrgyz reality, was worked out in the methodological base of the study. Regulations for the Training of Students of the Jusup Balasagyn Kyrgyz National University (2023) and testing criteria were also used.

The results of the study were based on empirical data – student responses, analysis of practical work and test scores. Students' knowledge levels were divided into three

categories, and their level of competence in CLIL technology was assessed relatively. High level – students are characterised by a deep interest in the profession, methodological knowledge, sufficient training in the principles of humane teaching and the ability to creatively apply knowledge in practice; good knowledge of foreign languages and the ability to communicate interculturally. Average level – interest and knowledge in the profession are at an average level, the ability to analyse linguistic and pedagogical issues is limited, they cannot fully demonstrate their competence in pedagogical situations; average level of foreign language proficiency. Low level – insufficient interest and knowledge in the professional field, difficulties in mastering linguistic and didactic issues; low level of proficiency in English and additional languages.

The study was conducted in the 2024/25 academic year at the Jusup Balasagyn Kyrgyz National University with the participation of 40 first- and second-year students, divided into control and experimental groups of 20 people each. Participants were selected using stratified randomisation, taking into account age (average age 19.5 years), initial level of English proficiency (CERF: A2-B1) and gender composition (65% women, 35% men). To ensure ethical correctness, all participants signed an informed consent form, and their data were anonymised by assigning identification codes (S1-S40). The study complied with the principles of the World Medical Association Declaration of Helsinki (2013) and the internal ethical code of KNU. The experiment was based on a quasi-experimental design with a pretest-posttest scheme and lasted 4 weeks (8 academic hours). The independent variable was the use of CLIL technology, and the dependent variable was the level of linguistic and didactic competence, assessed on a three-point scale (low, medium, high). Data was collected using author-developed tests adapted to CERF criteria and KNU-2023 intra-university standards, as well as a 5-point Likert scale questionnaire (α -Cronbach = 0.78) and structured observation with results recorded every 15 minutes. Statistical data processing was performed using SPSS 26.0. Descriptive statistics (mean values, percentages), Student's t-test for group comparison, and correlation analysis (Pearson's coefficient) were used to identify correlations. The results confirmed the statistical significance of the differences between the control and experimental groups ($p < 0.05$), which indicated the effectiveness of the CLIL methodology.

■ RESULTS AND DISCUSSION

Theoretical foundations for the development of linguistic competence in modern conditions

Transformations in the education system require every student – a future teacher – to develop a high level of competence, primarily in language teaching. In this regard, it is essential to develop and use innovative teaching technologies based on interdisciplinary integration. At the same time, the learning process in educational institutions must be purposefully organised and have a specific methodological and content-based foundation. Education KR State

Educational Standard of Higher Professional Education. Direction: 550700 Pedagogy. Qualification: Bachelor's Degree (2021) When analysing the following competencies that influence the formation of future teachers' linguistic and pedagogical competence, the following were identified: instrumental (IK): IK-1. Able to communicate effectively in one of the state, official and foreign languages in the field of work and education. Consequently, this competence can be defined as the linguistic and pedagogical competence of future teachers. Linguistic and pedagogical competence is an integrated system of knowledge, skills, methods and experience in the field of language and theory in higher professional education. It is aimed at providing linguistic and methodological training for future teachers, the effective use of language in the educational process, and the development of the ability to achieve pedagogical goals through language.

In developing the linguistic and pedagogical competence of future teachers, interdisciplinary integration is an educational strategy that ensures the interconnection of various disciplines and creates conditions for complex thinking. It develops the analytical and systematic thinking of future teachers. For example, combining foreign language lessons with pedagogy deepens students' linguistic and subject-specific understanding. Interdisciplinary connections enable students to master the language in a subject-specific context. This helps students develop the ability to argue lexically and terminologically, strengthening the connection between language and thinking.

The CLIL method is being introduced into higher education programmes in response to the labour market's need for specialists who are fluent in a foreign language and able to communicate effectively in an international professional and academic environment (Nguyen *et al.*, 2025). Teaching a specific subject in a foreign language using the CLIL method has a number of features (Dack *et al.*, 2020). These include: increased cognitive demands on students; regulation of requirements; effective organisation of students' learning activities; ensuring the connection between language and subject. These features are considered one of the main components of a teacher's professional competence in the context of content and language integrated learning. Educational programmes delivered in foreign languages are one of the competitive advantages of universities, determining their leading positions in global rankings. These programmes are focused on global educational and research areas and are aimed at training specialists capable of working in international scientific and professional communities. Teaching in such programmes is mainly conducted in one of the international languages, most often English, and teachers must be competent not only in the subject but also in the foreign language and apply the method of integrated teaching based on the subject and language (Content Based Instruction) or CLIL. This means that in order to use this methodology effectively in higher education programmes, it is also necessary to master its basic principles. Educational programmes delivered in

foreign languages are one of the competitive advantages of higher education programmes, determining their leading positions in global rankings. These programmes are oriented towards global educational and research directions and aim to prepare specialists capable of working in international scientific and professional communities. Instruction in such programmes is predominantly conducted in one of the international languages, most often English, and the instructor must possess competencies not only in the subject matter but also in the foreign language, applying the method of integrated instruction based on content and language (Content Based Instruction) or CLIL (Content and Language Integrated Learning). This means that for the effective use of this methodology in higher education programmes, it is also necessary to be familiar with its fundamental principles.

In the theory of foreign language learning, the concept of CLIL was proposed by researcher D. Marsh (2012) in the mid-1990s. This methodology is understood as a learning process that encompasses two directions: the first being a foreign language, and the second being a subject area (for example, pedagogy, psychology, history, philosophy, etc.) used as a medium for instruction. In other words, in this methodology, the learner not only acquires a foreign language but also learns the content of a specific scientific or academic discipline in that language. According to L. Khalyapina (2017), content is defined as "a set of theoretical knowledge and skills that determines the subject being studied, its goals, objectives, and related issues; that is, a collection of theoretical knowledge and skills that enables one to express accurate professional views and opinions in the field of the topics being studied."

In the formation of the linguodidactic competence of future teachers, interdisciplinary integration represents an educational strategy that ensures the interconnection of various disciplines and creates conditions for holistic thinking. It develops the analytical and systemic thinking of future teachers. For example, the combination of a foreign language lesson with pedagogy deepens the linguistic and subject understanding of the learner. Through interdisciplinary connections, students acquire the language within a subject context. This contributes to the formation of lexical and terminological speech in the learner and strengthens the link between language and thought (Kazazoglu, 2025). In summary, the aim of Content and Language Integrated Learning is to acquire knowledge and improve skills in a specific subject, while also enhancing language-related knowledge and skills during the study of that subject. The objectives of the CLIL methodology have been clarified by D. Coyle (2007) and explained in terms of four key components – 4C (Table 1).

Among researchers studying the theoretical and practical aspects of Content and Language Integrated Learning (CLIL), the work of E. Melekhina (2021) hold a significant place. In the author's view, there are several features that contribute to the effective implementation of this methodology. The first feature is the universality of learning. The CLIL approach considers language acquisition not as

an independent subject but in connection with other subject knowledge. The learning process, alongside the enhancement of language skills and abilities, facilitates the understanding of subject content in a foreign language. Furthermore, through the integration of multiple subjects, students develop functional literacy, as well as analytical and critical thinking skills. The educational process is also organised through intercultural projects, and students are engaged in reflecting on their learning activities. The second feature is the creation of a stimulating educational environment. The use of repetitive types of activities and discourses during lessons, as well as the full utilisation of the foreign language throughout the lessons, enhances students' confidence in the language and boosts their motivation. In such conditions, the language and subject matter are acquired mutually, with the language being used as a real means of communication. Thirdly, a light and comfortable environment for the learning process is created. The classroom facilities allow students to work freely in pairs or small groups. Access to resources is provided, and the individual needs and interests of students are taken into account during the language learning process, which contributes to the improvement of their language skills. The fourth feature is the provision of support and consideration of students' needs. In the event of language barriers arising during the learning process, students have the opportunity to seek assistance. Their interests, needs, and life experiences are always considered. Additionally, students are provided with opportunities to communicate with representatives of

other cultures and study subjects together in a foreign language. Lessons utilise materials from mass media, online sources, and other relevant information. The fifth characteristic is active learning. In CLIL lessons, students speak more than the teacher. They actively participate in setting learning objectives and assessing their achievements. Throughout the lesson, language resources and concepts are discussed collaboratively. The predominant format is pair work or small group activities. Teachers act not as traditional educators but as facilitators – supporting and guiding students. The sixth characteristic is developmental learning. The learning process is structured taking into account students' prior knowledge, skills, experiences, and interests. New information is presented in a clear and accessible manner. Various learning strategies are employed, fostering creativity and critical thinking among students. Students are encouraged to step out of their “comfort zone” and achieve new successes. The seventh characteristic is collaborative activity. In the effective implementation of the CLIL methodology, the cooperation between language and subject teachers holds particular significance. Teachers collaboratively plan lessons and courses, closely interacting with stakeholders (parents, administration, community organisations, etc.) to achieve common goals. The aforementioned characteristics affirm the multifaceted and systematic nature of the CLIL methodology and provide grounds for considering it an innovative technology aimed at integrating language and subject matter in higher pedagogical education.

Table 1. 4C model components

No.	4C components	Criterion
1	Communication	The level of proficiency in the foreign language being studied increases, communication skills are developed in all disciplines in the context of subject-language integrated learning, and individual types of speech acts are improved (listening, speaking, reading, writing).
2	Content	Developing skills through subject matter study, application of new knowledge and practical assignments.
3	Culture	To broaden understanding and deepen knowledge about cultures in interaction.
4	Cognition	Development of thinking; subject content, language skills and abilities are consistent with the existing knowledge, experience and needs of students. Students analyse their learning activities, synthesise new knowledge based on knowledge obtained in the course of studying various subjects, and apply it in practice.

Source: compiled by the authors based on D. Coyle (2007)

The pedagogical opportunities of CLIL technology hold particular significance for the development of students' foreign language communication skills and for increasing their interest in the subject being studied. In this approach, the foreign language is primarily used as a tool for discussing the subject content. This, in turn, promotes a deeper understanding of the subject and activates a type of speech activity known as “speaking” (Jiang *et al.*, 2022; Sudarso *et al.*, 2024). Under these conditions, students learn to express their thoughts clearly and fluently in a foreign language, resulting in increased language activity and the ability to adhere to language norms. D. Short (1994) asserts that “the CLIL approach contributes to an improved psychological climate in the classroom where the learning process occurs. It fosters a positive attitude among students towards native speakers of the foreign language and their

cultures, leading to increased motivation through interest in what is happening in the lesson.”

It can be confidently stated that CLIL is one of the most effective methods for developing linguistic-didactic competence. The essence of this method lies in the simultaneous development of language and subject competence through the teaching of subject content in a foreign language. In this approach, the foreign language, unlike traditional language study, is used not only as a means of communication but also as a tool for acquiring knowledge. The value of this approach for future teachers lies in its ability to develop their professional and linguistic training on a unified basis. The CLIL methodology serves as an important platform for implementing interdisciplinary integration, as it necessitates the interaction of various professional disciplines such as pedagogy, psychology, linguistics, and

others. Linguodidactic competence, in turn, is characterised by the future teacher's ability to select linguistic resources in accordance with the content of foreign language instruction, present material using linguistic means, and organise students' linguistic activities.

Results of the empirical study of linguodidactic competence

The results of the level of linguodidactic competence of students in the experimental and control groups before the start of the experiment are presented in Table 2.

Table 2. Distribution of students into experimental and control groups

J. Balasagyn Kyrgyz National University	Total quantity	Low		Average		Higher	
		quantity	%	quantity	%	quantity	%
Experimental	20	12	60	6	30	2	10
Control	20	15	75	4	20	1	5

Source: compiled by the authors

As can be seen from Table 2, the initial knowledge of students in both the control and experimental groups is at the same level. Among them, 60-75% demonstrate a medium to low level of language didactic competence. The level

of development of students' language didactic competence following the pedagogical experiment is presented in Table 3, while the indicators of the development of students' language didactic competence are shown in Figure 1.

Table 3. The level of development of students' linguodidactic competence after the pedagogical experiment

J. Balasagyn Kyrgyz National University	Total quantity	Low		Average		Higher	
		quantity	%	quantity	%	quantity	%
Experimental	20	0	0	6	30	14	70
Control	20	4	20	14	70	2	10

Source: compiled by the authors

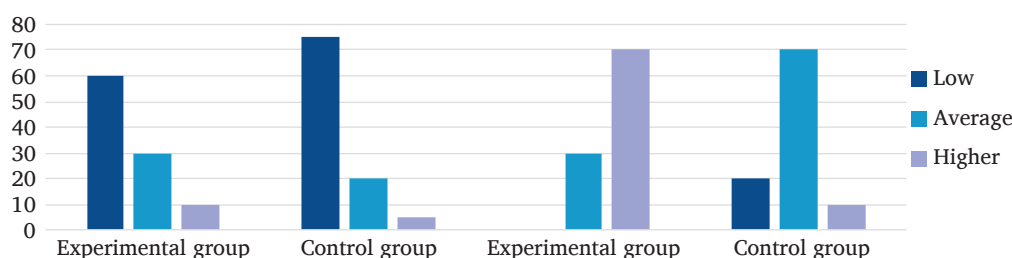


Figure 1. Indicator of the development of students' linguodidactic competence

Source: compiled by the authors

Analysing the results obtained during the experiment, it can be noted that the level of linguodidactic competence among the majority of students, who are future teachers, has significantly increased. For instance, in the current pilot experiment, the proportion of future teachers who received good grades in the experimental groups was 10%, whereas after the experiment, this figure rose to 70%. A similar increase was observed among the students in the control group. However, the level of linguodidactic competence among students in the experimental group was significantly higher than that of students in the control group. A similar increase was also observed among the students in the control group. Thanks to new educational technologies, modular assessments, examinations, and coursework in groups have proven to be effective. During the experimental learning, there was a noticeable development of students' cognitive engagement, along with a positive motivation towards the subject and their future profession. As a result, it was found that students demonstrate a creative approach to their work. Future teachers more frequently

consulted the instructor during their tasks, leading to a dialogue of Teacher + Student = Professional Relationship.

The question of achieving the maximum possible efficiency of experimental learning during pedagogical experimentation remains open; however, it can be noted that the results of the learning process approach the level that students can realistically achieve. As stated by D. Scott & S. Beadle (2014), for the effective development of linguistic-didactic competence in future teachers when using CLIL methodology, subject teachers should select methods that take into account language difficulties and cognitive load. If the teacher is a specialist without linguistic training, they must anticipate the obstacles that students may encounter through pedagogical reflection and strive to ensure a balance between the content of learning and the language tools used (Assanova *et al.*, 2024).

Thus, for the successful implementation of CLIL in higher education programmes, instructors are required not only to have a thorough understanding of the subject matter and a necessary level of proficiency in a foreign

language as a means of communication, but also to set realistic objectives. These objectives should be determined with consideration of the students' levels of subject and language proficiency (ÓLaoire, 2006). Furthermore, when selecting the content for instruction, educators must adhere to the fundamental principles of the CLIL methodology. In particular, it is essential to take into account the cognitive demands placed on students when learning the subject through foreign language resources, as well as whether their level of language proficiency is sufficient to accomplish the set tasks (Blázquez et al., 2013).

In the process of developing the linguodidactic competence of future teachers, it is essential to identify the difficulties that students encounter and to respond to them promptly and flexibly. To achieve this, it is necessary to effectively utilise “auxiliary” forms that facilitate understanding of the language and the content of the educational material, as well as to make efficient use of a variety of teaching resources – from graphic organisers to multimodal educational texts. Therefore, the implementation of the CLIL approach within the framework of interdisciplinary integration not only enhances the subject-language preparation of future teachers but also fosters a comprehensive linguodidactic competence that enables flexible pedagogical decision-making during the learning process. The use of the CLIL approach in the training of future teachers is particularly significant as a modern and comprehensive method for developing linguodidactic competence based on interdisciplinary integration.

■ CONCLUSIONS

In the formation of linguistic and didactic competence for future teachers, interdisciplinary integration, particularly the use of CLIL technology, is an effective approach that meets the demands of modern education. It creates conditions for mastering educational content and language through interaction, while simultaneously developing students' subject knowledge and their ability to communicate in a foreign language. Such integration requires educators to possess a high level of pedagogical reflection, foresight regarding potential difficulties in mastering content and language, and the ability to develop flexible teaching strategies. As demonstrated by the results of the conducted research, interdisciplinary integration, particularly the use of CLIL technology, is an effective didactic method in forming the linguistic and didactic competence of future teachers, aligning with the requirements of contemporary education systems. Integrated learning establishes conditions for the mastery of language and subject content as a unified system, while concurrently fostering students' linguistic, communicative, and subject-specific competencies. The research established that the use of the CLIL technology

contributes to the improvement of foreign language proficiency, the maintenance of language competence, and the deepening of subject knowledge among students. This technology also enhances motivation towards the learning process, deepens intercultural understanding, and activates cognitive engagement. Practical results of the study demonstrated its suitability for use in the development of educational and methodological complexes and integrative courses based on interdisciplinary integration. It is recommended to widely employ teaching forms that integrate language and subject matter in higher education programmes for teacher training. The CLIL technology fosters the development of professional and general competencies in future teachers, providing opportunities to update teaching in substantive, linguistic, and cultural aspects.

This methodology facilitates the integration of higher education institutions into the international arena, promotes academic mobility among students, and encourages the exchange of professional experiences. Thus, subject-language integration based on the CLIL approach will enhance the methodological training of future educators, developing their ability for independent work and scientific thinking. Further research in this area may focus on the development and testing of more detailed criteria and assessment tools for evaluating the formation of linguistic-didactic competence at various stages of education, which will allow for a more accurate monitoring of students' developmental dynamics.

■ ACKNOWLEDGEMENTS

The authors express their deep gratitude to the academic staff of the Department of Pedagogy and Psychology at the Institute of Social and Humanitarian Sciences, the Department of Kyrgyz Language and Literature at the Faculty of Kyrgyz Philology, as well as to the students who actively participated in the research process. Special thanks are extended to the Academic and Methodological Council for the support provided in carrying out the research.

■ FUNDING

This study was conducted in accordance with the established internal scientific and pedagogical plan and did not require separate funding. All stages of the research were carried out at the initiative of the authors and with the support of the university's educational and methodological commission.

■ CONFLICT OF INTEREST

The authors declare that they have no financial, academic, or personal conflicts of interest related to the data and results of the research presented in this article.

■ REFERENCES

- [1] Assanova, A., Solovyova, N., Segizbayeva, K., Evdokimova, O., & Radchenko, T. (2024). The formation of the discursive competence of future CLIL teacher: Components aspect. *Scientific Herald of Uzhhorod University. Series “Physics”*, 55, 1101-1112. [doi: 10.54919/physics/55.2024.110ht1](https://doi.org/10.54919/physics/55.2024.110ht1).

- [2] Blázquez, M., Santos, J., Carro, G., Diaz, G., Castro, M., Latorre, M., Plaza, I., & Arcega, F. (2013). Teaching technology with CLIL methodology: A case study. In *IEEE global engineering education conference (EDUCON)* (pp. 581-590). Berlin: IEEE. doi: [10.1109/EduCon.2013.6530164](https://doi.org/10.1109/EduCon.2013.6530164).
- [3] Coyle, D. (2007). Content and language integrated learning: Towards a connected research agenda for CLIL pedagogies. *International Journal of Bilingual Education and Bilingualism*, 10(5), 543-562. doi: [10.2167/beb459.0](https://doi.org/10.2167/beb459.0).
- [4] Dack, T.M.F., Argudo, J., & Abad, M. (2020). Language and teaching methodology features of CLIL in university classrooms: A research synthesis. *Colombian Applied Linguistics Journal*, 22(1), 40-54. doi: [10.14483/22487085.13878](https://doi.org/10.14483/22487085.13878).
- [5] Dzusova, B.T., & Slanova, M.A. (2021). Formation of language and linguistic competencies of students-future teachers in the context of bilingualism. *CITISE*, 2, 138-144. doi: [10.15350/2409-7616.2021.2.13](https://doi.org/10.15350/2409-7616.2021.2.13).
- [6] Golovchun, A. (2021). Research skills development of future foreign language teachers through project-based learning. *Bulletin of KazNPU named after Abai. Series "Philology"*, 2(76), 94-100. doi: [10.51889/2021-2.1728-7804.12](https://doi.org/10.51889/2021-2.1728-7804.12).
- [7] Ibragimova, E.K., & Medzhitova, Z.S. (2019). Interdisciplinary connections of language cycle lessons as a factor in the development of bilingual auditive skills. *Language and Text*, 6(1), 70-74. doi: [10.17759/langt.2019060112](https://doi.org/10.17759/langt.2019060112).
- [8] Igolkina, M.I., & Yazynina, V.S. (2024). The role of interdisciplinary connections in teaching a foreign language in a non-linguistic university. *Bulletin of Humanitarian Education of Bauman Moscow State Technical University*, 1(105). doi: [10.18698/2306-8477-2024-1-893](https://doi.org/10.18698/2306-8477-2024-1-893).
- [9] Jiang, P., Akhter, S., Azizi, Z., Gheisari, A., & Kumar, T. (2022). Exploring the role of content and language integrated learning approach in developing transversal skills in university students with respect to the mediating role of emotional intelligence. *Frontiers in Psychology*, 13, article number 988494. doi: [10.3389/fpsyg.2022.988494](https://doi.org/10.3389/fpsyg.2022.988494).
- [10] Kartashova, L.A., & Plish, I.V. (2020). Digital agenda for the development of education: Focus on the formation of digital competencies. *Scientific Bulletin of Mukachevo State University. Series "Pedagogy and Psychology"*, 6(1), 157-165. doi: [10.52534/msu-pg.6\(1\).2020.157-165](https://doi.org/10.52534/msu-pg.6(1).2020.157-165).
- [11] Kazazoglu, S. (2025). Environmental education through eco-literacy: Integrating sustainability into English language teaching. *Sustainability*, 17(5), article number 2156. doi: [10.3390/su17052156](https://doi.org/10.3390/su17052156).
- [12] Khalyapina, L.P. (2017). Interdisciplinary coordination in the system of professionally oriented teaching of foreign languages in the university. *Bulletin of the Perm National Research Polytechnic University. Problems of Linguistics and Pedagogy*, 2, 149-157. doi: [10.15593/2224-9389/2017.2.15](https://doi.org/10.15593/2224-9389/2017.2.15).
- [13] Marsh, D. (2012). *Content and Language Integrated Learning (CLIL). A development trajectory*. Córdoba: University of Córdoba.
- [14] Matviienko, I. (2022). *Critical thinking as "soft skill" for the human of the XXI century*. *Humanities Studios: Pedagogy, Psychology, Philosophy*, 10(2), 99-104.
- [15] Melekhina, E.A. (2021). Content and language integrated learning in university education: Goals, content, methodology. *News of the Herzen State Pedagogical University*, 199, 81-90. doi: [10.33910/1992-6464-2021-199-81-90](https://doi.org/10.33910/1992-6464-2021-199-81-90).
- [16] Nartayeva, M., Zhylysbayeva, A., & Rysbayeva, G. (2024). The impact of CLIL technology on the professional competence of pre-service biology teachers. *Journal of Educational Sciences*, 78(1), 154-164. doi: [10.26577/JES20247801013](https://doi.org/10.26577/JES20247801013).
- [17] Nguyen, H.T.M., Nguyen, H.T.T., Gilanyi, L., Hoang, T.H., & Gao, X. (2025). Content Language Integrated Learning (CLIL): Teachers' metacognitive understanding of pedagogical translanguaging. *Learning and Instruction*, 97, article number 102085. doi: [10.1016/j.learninstruc.2025.102085](https://doi.org/10.1016/j.learninstruc.2025.102085).
- [18] ÓLaoire, M. (2006). Language education for language revival. In K. Brown (Ed.), *Encyclopedia of language & linguistics* (pp. 407-411). Amsterdam: Elsevier. doi: [10.1016/B0-08-044854-2/00666-0](https://doi.org/10.1016/B0-08-044854-2/00666-0).
- [19] Raimkulova, A.S. (2016). *Formation of educational and cognitive competencies of future teachers in the context of the competence-based approach*. *International Journal of Applied and Fundamental Research*, 2(3), 379-380.
- [20] Regulations for the Training of students of the Jusup Balasagyn Kyrgyz National University. (2023). Retrieved from https://www.knu.kg/ky/ru/wp-content/uploads/sites/2/2024/02/reg_obuch_2023.pdf.
- [21] Romanova, O.V. (2012). *Model of formation of professional competence of a teacher*. *Pedagogy*, 2, 63-71.
- [22] Rubina, N.S. (2012). *Methodology of formation of linguodidactic competencies of future foreign language teachers on an interactive basis*. (Abstract of the dissertation for the degree of PhD in Pedagogical Sciences, Perm State Pedagogical University, Nizhny Novgorod, Russian Federation).
- [23] Scott, D., & Beadle, S. (2014). *Improving the effectiveness of language learning: CLIL and computer assisted language learning*. London: ICF.
- [24] Short, D.J. (1994). Expanding middle-school horizons: Integrating language, culture and social studies. *TESOL Quarterly*, 28(3), 581-608. doi: [10.2307/3587309](https://doi.org/10.2307/3587309).
- [25] State Educational Standard of Higher Professional Education. Direction: 550700 Pedagogy. Qualification: Bachelor's Degree. (2021). Retrieved from <https://talsu.kg/wp-content/uploads/2024/05/550700.docx>.

- [26] Sudarso, H., Globalisasi, S.E., & Dibdyaningsih, H. (2024). Implementation of the CLIL (Content and Language Integrated Learning) approach in English language learning. *Global International Journal of Innovative Research*, 2(10), 2315-2330. doi: [10.59613/global.v2i10.329](https://doi.org/10.59613/global.v2i10.329).
- [27] World Medical Association Declaration of Helsinki. (2013, November). Retrieved from <https://www.wma.net/wp-content/uploads/2016/11/DoH-Oct2013-JAMA.pdf>.
- [28] Yakimova, Z.V., & Nikolaeva, V.I. (2012). *Competence assessment: Professional environment and university*. *Higher Education in Russia*, 12, 13-22.

Болочок мугалимдердин лингводидактикалык компетенттүүлүгүн калыптандырууда предметтер аралык интеграциянын өзгөчөлүктөрү

Айсулу Баялиева

Педагогика илимдеринин кандидаты, доцент
Ж. Баласагын атындагы Кыргыз улуттук университети
720033, Фрунзе көч., 547, Бишкек ш., Кыргыз Республикасы
<https://orcid.org/0009-0000-4389-7856>

Самара Нурбекова

Ага окутуучу
Ж. Баласагын атындагы Кыргыз улуттук университети
720033, Фрунзе көч., 547, Бишкек ш., Кыргыз Республикасы
<https://orcid.org/0009-0003-9449-7598>

Назира Темиркан кызы

Магистрант
Ж. Баласагын атындагы Кыргыз улуттук университети
720033, Фрунзе көч., 547, Бишкек ш., Кыргыз Республикасы
<https://orcid.org/0009-0009-4048-682X>

Аннотация. Педагогикалык билим берүү системасындагы заманбап талаптар келечектеги мугалимдердин лингводидактикалык компетенттүүлүгүн калыптандырууга инновациялык ыкмаларды киргизүүнү талап кылат. Бул макаланын максаты интеграцияланган билим берүү технологияларынын негизинде лингводидактикалык компетенцияны калыптандыруу процессинде дисциплиналар аралык интеграциянын өзгөчөлүктөрүн жана потенциалын аныктоо болгон. Иште илимий адабияттарды теориялык талдоо, салыштыруу, айкалыштыруу, синтездөө, системалаштыруу ыкмалары, ошондой эле эмпирикалык ыкмалар, анын ичинде байкоо, анкета, тестирлөө, сурамжылоо, интервью жана педагогикалык эксперимент колдонулган. Изилдөөнүн жыйынтыгы боюнча мугалимдерди даярдоодогу дисциплиналар аралык интеграциянын мазмундук аспекти аныкталган. Тил менен кесиптик билимди интеграциялоонун эффективдүү каражаты катары CLIL (Content and Language Integrated Learning) технологиясынын мүмкүнчүлүктөрү талдоого алынган. Ж. Баласагын атындагы Кыргыз улуттук университетинде жүргүзүлгөн эксперименталдык изилдөө эксперименталдык топтун лингводидактикалык компетенттүүлүгүнүн көрсөткүчтөрүнүн кыйла жакшырганын көрсөттү. Ошентип, эгерде экспериментке чейин студенттердин 10 %ы жогорку деңгээлдеги компетенттүүлүгүн көрсөтсө, CLIL программасын ишке киргизгенден кийин бул көрсөткүч 70 %га өскөн. Ошол эле учурда компетенттүүлүк деңгээли төмөн студенттердин үлүшү 60 %дан 0 %га чейин төмөндөгөн. Контролдук топто мындай олуттуу өзгөрүүлөр байкалган эмес. CLILди колдонуу студенттердин критикалык ой жүгүртүүсүн, тилин жана коммуникациялык көндүмдөрүн өнүктүрүүгө, ошондой эле алардын маданияттар аралык компетенттүүлүгүн бекемдөөгө өбөлгө түзөрү аныкталган. Дисциплиналар аралык интеграция окуу материалын тереңирээк өздөштүрүүгө, окуучулардын таанып билүү активдүүлүгүн активдештирүүгө жана алардын окууга болгон кызыгуусун арттырууга шарт түзөт. Изилдөөнүн практикалык мааниси, алынган натыйжалар келечектеги мугалимдердин лингводидактикалык компетенттүүлүгүн эффективдүү өнүктүрүү максатында жогорку окуу жайларында комплекстүү окуу курстарын жана методикалык материалдарды иштеп чыгууда колдонууга мүмкүнчүлүк берет.

Негизги сөздөр: педагогикалык билим берүү; интеграцияланган билим берүү технологиялары; CLIL; тилдик билим берүү; кесиптик даярдык; критикалык ой жүгүртүү; коммуникативдик жөндөмдөр

Особенности межпредметной интеграции в формировании лингводидактической компетентности будущих учителей

Айсулу Баялиева

Кандидат педагогических наук, доцент

Кыргызский национальный университет имени Ж. Баласагына

720033, ул. Фрунзе, 547, г. Бишкек, Кыргызская Республика

<https://orcid.org/0009-0000-4389-7856>

Самара Нурбекова

Старший преподаватель

Кыргызский национальный университет имени Ж. Баласагына

720033, ул. Фрунзе, 547, г. Бишкек, Кыргызская Республика

<https://orcid.org/0009-0003-9449-7598>

Назира Темиркан кызы

Магистрант

Кыргызский национальный университет имени Ж. Баласагына

720033, ул. Фрунзе, 547, г. Бишкек, Кыргызская Республика

<https://orcid.org/0009-0009-4048-682X>

Аннотация. Современные вызовы в системе педагогического образования требуют внедрения инновационных подходов к формированию лингводидактической компетентности будущих учителей. Целью данной статьи было выявление особенностей и потенциала межпредметной интеграции в процессе формирования лингводидактической компетентности на основе интегрированных образовательных технологий. В работе использовались методы теоретического анализа научной литературы, сравнения, сопоставления, синтеза, систематизации, а также эмпирические методы, включая наблюдение, анкетирование, тестирование, опрос, интервью и педагогический эксперимент. По результатам исследования были определены содержательные аспекты межпредметной интеграции в подготовке педагогов. Проанализированы возможности технологии CLIL (Content and Language Integrated Learning) как эффективного средства интеграции языкового и профессионального образования. Экспериментальное исследование, проведенное на базе Кыргызского национального университета имени Ж. Баласагына, показало значительное улучшение показателей лингводидактической компетентности в экспериментальной группе. Так, если до эксперимента высокий уровень компетентности демонстрировали 10 % студентов, то после внедрения программы на основе CLIL этот показатель увеличился до 70 %. В то же время доля студентов с низким уровнем компетентности снизилась с 60 % до 0 %. В контрольной группе таких существенных изменений не наблюдалось. Установлено, что использование CLIL способствует развитию критического мышления, языковых и коммуникативных навыков студентов, а также укреплению их межкультурной компетентности. Межпредметная интеграция содействует более глубокому усвоению учебного материала, активизации познавательной деятельности студентов и повышению их интереса к обучению. Практическая значимость исследования заключается в том, что полученные результаты могут быть использованы при разработке интегративных учебных курсов и методических материалов в высших учебных заведениях с целью эффективного формирования лингводидактической компетентности будущих педагогов

Ключевые слова: педагогическое образование; интегрированные образовательные технологии; CLIL; языковое образование; профессиональная подготовка; критическое мышление; коммуникативные навыки