

# The main results of research on the CLIL project in Taraz State Pedagogical University

Kozhamzharova D.P.<sup>1\*</sup>, Issabekova G.B.<sup>2</sup>, Duisenova N.T.<sup>3</sup>, Akhmetova A.<sup>4</sup>, Eskermesova G.<sup>5</sup>

<sup>1</sup> doctor of historical sciences, professor, pedagogy and culture department, general history and museum studies faculty, M.Auezov South Kazakhstan State University, Shymkent, Kazakhstan, <sup>2</sup> PhD, Foreign languages department, Philology faculty, Taraz State Pedagogical University, Taraz, Kazakhstan, <sup>3</sup> senior teacher, Practical Languages department, Philology faculty, Taraz State Pedagogical University, Taraz, Kazakhstan, <sup>4</sup> teacher, "Social Pedagogy and Self-knowledge" department, History and Social pedagogics faculty, Taraz State Pedagogical University, Taraz, Kazakhstan, <sup>5</sup> Teacher, "Social Pedagogy and Self-knowledge" department, History and Social pedagogics faculty, Taraz State Pedagogical University, Taraz, Kazakhstan.

**Correspondence:** Kozhamzharova D.P., doctor of historical sciences, professor, pedagogy and culture department, general history and museum studies faculty, M.Auezov South Kazakhstan State University, Shymkent, Kazakhstan.

## ABSTRACT

The gradual transition of the national education system of the Republic of Kazakhstan to a trilingual model has led to the development of methodical and methodological approaches to the effective teaching of subjects of natural science in English. In turn, the use of a foreign language as a means of developing intercultural communication amongst students requires studying the existing global and regional experience in this field. This article presents a case study on the use of the CLIL (Content language integrated learning) method in Taraz State Pedagogical University in the process of teaching a school course in physics. The paper describes the results of an analytical review of international experience in training teachers, in the framework of the Content language integrated learning CLIL, directly studied the experience of Germany and Latvia, conducted sociological surveys among subject teachers in a number of schools in the Zhambyl region analyzed, presented the structure and content of the developed comprehensive curriculum for advanced training courses for physics teachers of secondary school, presented developed educational and didactic materials "Activity books" in the school course of physics, and based on the results of the study, the developed guidelines for subject teachers on how to optimize the teaching of subjects in English are presented.

**Keywords:** usage, CLIL technology, educational process, method, approach.

## Introduction

In order to conduct an analytical review of international experience in the training of teachers, in the framework of the CLIL Content language integrated learning method, we analyzed the world literature and Internet sources on the researched problem. The experience of Germany and Latvia in using CLIL technology was studied during research and exploratory tours at the University of Education Schwaebisch Gmuend (Germany, June 19-30.06.2018.), SIS Swiss

International School Stuttgart-Fellbach (Stuttgart) international bilingual school, Daugavpils Russian Lyceum (Latvija), Valmiera Secondary School No. 2 (Riga city, Latvia). In particular, the process of teaching the school course of geography and mathematics in English in the format of Team-teaching according to the CLIL technology has been studied.

In order to create a domestic model of using CLIL technology for teaching subjects of the natural science cycle in general education schools of the republic, we chose 18 secondary schools in the Zhambyl district of the Zhambyl area as an experimental platform. An agreement for joint research has been signed with these schools. The work began with a sociological study among subject teachers (interviews and opinion polls were conducted). In the course of surveys and sociological studies, factual material was collected for further practical actions. Based on primary empirical data (observations, interviews, analysis of teaching materials) a comprehensive training on the study and implementation of technology CLIL program was developed. For beginner educators, a vocabulary of terminological terms has been

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developed, taking into account the elementary level of subject teachers. A number of general methodological and psychological-pedagogical recommendations on the implementation of the CLIL methodology in the schools of the region have been developed.

## Materials and Methods

Creating a domestic model of using CLIL technology should be based on a study of the state of problems, the creation and development of an integrative methodology, the possibility of preparing a resource base for subject and English teachers. In this regard, using the existing experience of the research group, 4 conceptual ideas of the project were identified:

- first, we are talking about the primary importance of the development of 4 linguistic competences in the conditions of a trilingual education: listening, speaking, writing, reading. This is due to the fact that, unfortunately, both school and university courses are replete with lexical, grammatical and morphological content, which makes it difficult for students actual replication of the studied material to English. While, little time is allocated to the specified language competences. In addition, as the practice of teaching shows, the use of vocabulary in the form of single terms and words is extremely inefficient. A much greater result comes from the use of phrases, ready-made constructs, short sentences;
- secondly, the practice of teaching shows that, in the circumstances of science education, where a large number of terms, physico-chemical variables and basic laws are international, it is necessary to use only original educational and scientific literature, at least at the initial stage;
- thirdly, the attitude of teachers, students and schoolchildren themselves to a foreign language should be changed, since it becomes obvious that English is not a goal, but a means and tool for learning the world around;
- fourthly, the organizational culture of schools and universities should include the widespread propaganda of the English language, at the same time, students become “addictive” at the psychoemotional level, which obviously have positive effect on the results of learning and teaching <sup>[1]</sup>.

## Results and discuss.

**Stage 1.** Studying the experience of Latvia and Germany.

### CLIL in the school system of Latvia

In 2014, the Cabinet of Ministers of the Republic of Latvia approved the political planning document “Managerial principles for the development of education for 2014–2020”, emphasizing the role and development of multilingualism, the

development of a multilingual person, and promoting the skills of a foreign person <sup>[2]</sup>.

Some schools in Latvia have embedded CLIL in the school curriculum. For example, in the Daugavpils Russian Lyceum teach the subject of geography in English as an optional subject. In the city of Daugavpils, the CLIL technology is been used since 2006. Today there are 17 schools in this city, of which 11 schools use CLIL in the following subjects: mathematics, physics, social sciences, biology, sports, anatomy.

In Valmiera Secondary School No. 2, the subject of Mathematics is conducted by two teachers in collaboration: an English language teacher and a mathematics teacher. In Riga English Gymnasium, the subject of art, Riga Lastadija Primary Boarding-School, the subject of physics and science, secondary school No. 34 (Riga), the subject of science and geography is taught using CLIL technology.

General education programs are developed by schools that offer them, in accordance with national standards. All programs must be licensed and accredited by the Ministry of Education and Science. Methods of external quality control at the national level include the accreditation of educational programs and institutions and certification of school managers. CLIL teachers need not be native speakers. In primary education, teachers specialized in foreign languages and those who have completed advanced training courses have the right to teach another subject in their special language. In secondary education, a subject teacher can use another language in the learning process.

Another way to use CLIL technology in the educational process is cooperation between the teacher of the subject and teacher of foreign languages subject.

There are 4 types of cooperation model in Daugavpils:

The first model. Subject teacher cooperation with a foreign language teacher for:

- joint lesson planning
- consultation on the use of a foreign language

The second model. Collaboration of teachers for:

- joint lesson planning
- counseling of foreign language teachers on the use of language
- training in a team
- preparing students for class exercises

The third model. The lesson is taught by a subject teacher in English.

The fourth model. A foreign language teacher uses material on a specific subject, and uses interdisciplinary communication (cross-subject integration). But the focus is on learning the language, rather than the subject.

The third model is most widely used in Latvia, since this model is the most effective from the perspective of funding and the results of scientific research in Latvia.

Latvia recognizes the benefits of CLIL technology. It contributes to the improvement of language skills and subject

knowledge, the development of different learning strategies, as well as the development of intercultural understanding, since the majority of the population of Latvia is 54% trilingual.

The main problems and barriers in the process of teaching integrated subjects:

- 1) Teachers and students do not have the skills of foreign language at a sufficient level
- 2) Not enough training materials <sup>[3]</sup>.

## Multilingual education in Germany.

Nevertheless, knowing only the German language and getting an education in one language is not the only option of education in Germany. Although the prevalence of native language education programs has declined, there is an increase in education in languages other than German.

Moreover, the focus is not so much on the integration and well-being of migrant children in their own communities (or with regard to the possible return of them to their countries), but in the hope of integrating them into the German economy, improving social integration in the wider public community, and finally, increasing economic and educational mobility within the European Union and beyond.

An important innovation, reflecting the modified rationale of native-language education for the promotion of the linguistic competence of national minorities, was the creation and distribution of bilateral bilingual educational programs in several languages. There are private schools in several German cities offering bilingual immersion programs. In addition, some of them have established public schools with immersion or partial immersion programs in several languages, the so-called "Berlin model". State European schools in Berlin (Staatliche Europa schulen Berlin, SESB) are unique in Germany by the number of representing different language pairs, and they continue throughout the entire middle level up to the graduation of the school. These schools, based on the assumption that highly professional multilingualism is very beneficial, are designed to prepare students for international employment and training and serve as a bridge between Western and Central Europe. At the same time, on the part of the biological approach, in which students of different backgrounds learn from each other, such schools intend to make a significant contribution to combating prejudice and discrimination.

First of all, it is necessary to consider how the preparation for work on the CLIL methodology is carried out as part of the educational programs of higher pedagogical education in Europe. Charles University in the Czech Republic offers a program of training future teachers of mathematics, which includes the course CLIL, developed jointly by the departments of mathematics and English. In addition to language and theoretical and methodological training, this course also includes a practical component: students as observers attend classes of teachers implementing the CLIL methodology, and then they themselves conduct micro-teaching with their fellow students. At the same time,

attention is paid to possible affect barriers that impede effective learning. The feeling of anxiety, expressed in insecurity, fear of failing and being ridiculed by classmates or group mates, impedes effective learning. It is important to understand that in the case of CLIL, the affective barriers accompanying learning under normal conditions are intensified, firstly, because of the need to use a non-native language in the learning process, secondly, because this technique is new, unusual for students, requires a fundamentally different organization of the educational process and the other, more active participation in the students themselves. That is why an important role in the implementation of the CLIL method is given to the so-called "teaching support stage" (scaffolding), designed to create an atmosphere during class, in which students would feel safe and comfortable <sup>[4]</sup>.

A fundamentally different approach was used by S. Lucietto in the province of Trentino, Italy: instead of short-term courses, a model for training teachers throughout the school year was introduced, without interrupting the work; instead of wide coverage of teachers throughout the country, it was proposed to focus on several "pilot" schools and then, if successful, to gradually expand the geography of the participants <sup>[5]</sup>.

To participate in this project, the Trentino Provincial Department of Education initially selected 3 schools. In each of them, teams of 3 people were formed: a subject teacher, a teacher of a foreign language, and an external consultant appointed by the local institute of advanced training for teachers. In so doing, the latter did not act as an expert, whose opinion should play a decisive role, but as an ordinary member of the team. The key principle of work within the framework of this project is the principle of cooperation: the subject teacher knows what content should be mastered in the lesson, how the lesson course should be built and how to check the knowledge gained by students; the teacher of a foreign language is well acquainted with the mechanisms of mastering a non-native language, knows what difficulties may arise when perceiving a new material in a foreign language and how these difficulties can be overcome; Finally, the external consultant has the necessary theoretical, methodological and practical knowledge necessary to integrate the subject and language content in one lesson. Working together through professional dialogue, they are able to succeed. That is why the project was named TATEO, which stands for Talking to Each Other.

In this paper, the authors make an overview article on the effectiveness of using the CLIL methodology. This article is therefore intended to provide a first overview of the questions that were considered in the course of ongoing CLIL research, as well as some initial results and preliminary answers <sup>[6]</sup>.

To provide a conceptual link to the research findings presented in this chapter I in the next brief we will expand on what CLIL seems to be, in particular by analyzing the goals and rationales that were formulated for this educational practice. Exactly from these issues that arise questions, which CLIL-oriented research aims to answer. During this discussion, the focus will be on the language aspect of learning at CLIL, but of course

other levels of learning (content, culture, cognition) also shift into focus, as the boundaries are inevitably blurred.

In the review, the authors describe the European educational systems make great efforts to improve the teaching of foreign languages to foreign languages, since there are many students who leave compulsory education only because of the most limited ability to communicate in a foreign language. In this context, the implementation of CLIL (Content and Language Integrated Learning) courses gradually is becoming principle across Europe as a whole, since this approach greatly improves the overall language competence in the target language. The paper discusses the implementation of CLIL in a bilingual community in which Basque and Spanish are official, but English is the third language in the curriculum. The results show that the CLIL approach is successful and helps improve students' foreign language even in bilingual contexts where English has little social presence <sup>[7]</sup>.

Through analyzing the review of foreign practice of using CLIL technology in the preparation of teaching staff, we can draw the following conclusions:

The issue of training teachers for teaching in a foreign language should be resolved, as a matter of priority, at the level of higher education, which requires certain changes at the legislative level. Foreign experience shows that the training of teachers capable of effectively implementing the CLIL methodology is truly sustainable character only in those countries where it is officially included in the content of teacher education. In other cases, such preparation is carried out in such a fragmented way that it is extremely difficult to talk about the existence of a certain unified system.

For teachers already working in the education system, advanced training courses should be developed, the duration and intensity of which would allow, on the one hand, to become familiar with the CLIL methodology in detail, not at the level of general fundamentals, on the other - to undergo training on-the-job.

Since the CLIL method is innovative and, therefore, to a great extent require teachers to leave the "comfort zone" and substantially revise their own pedagogical style, a favorable psychological climate is important in the preparation process, and training should be practice-oriented.

Many European scientists emphasize the lack of a single version of CLIL, which could be equally successfully implemented in all countries. In the Republic of Kazakhstan, the wide-spread adoption of trilingual education has been launched, so we need our own model of teacher training, which in the development of that must take into account history and cultural heritage. An objective assessment of the current state of multilingualism in Kazakhstan's society and consideration of Kazakhstan's strategic development plans are also needed <sup>[8]</sup>.

**Stage 2. Conducting a sociological study of the state of affairs in the schools of the region.** Strengthening the connections with schools was carried out on the implementation of the CLIL methodology by direct departure to the areas of Zhambyl region.

The total coverage was 18 general schools. Collaborative work on the project began since the conclusion of bilateral agreements:

- communication with schools through contracting was established;
- classes were visited, and conversations with the subject teachers and students were conducted. During the class visit, consultations and advice on the organization and conduct of the CLIL exercise were given;
- cooperation with foreign scientists has been established, the possibility of performing joint research projects has been created;
- a survey was conducted among subject teachers and a number of psychological and pedagogical problems were identified during the work on the CLIL;
- A survey was conducted among subject teachers in rural schools in Zhambyl oblast to study the state of the problem in the modern world, and determining the psychological aspects of teaching physics in English in secondary schools.

85 teachers voluntarily participated in the survey. The result of the survey showed the following results: 20% - high level, 35% - medium level, 45% - low level of knowledge of teachers according to CLIL technology.

The result of the survey identified the need for enhancing the knowledge of teachers according to CLIL technology, constant professional development of subject teachers, and providing psychological support. For example, to the question "Are you ready to implement the integration of the subject and language?" none of the teachers answered "yes", 60% of them answered "no", the remaining 40% selected the answer "I don't know".

After the survey, in order to identify a number of psychological and pedagogical problems in the application of integrated teaching of the subject and language, an interview with teachers as respondents were conducted.

According to the study, the psychological and pedagogical problems of implementing CLIL should be considered in two aspects:

- teacher: low level of language skills, lack of educational and methodical materials, misunderstanding of integrated teaching of subject and language, diversity of teaching methods;
- student: low level of English proficiency in rural schools, other compulsory subjects and a large amount of homework, low motivation.
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The conducted study allows us to develop a number of measures of the nature of methodical and methodological, that will effectively solve the problem of introducing subject-

language integrated learning in all schools of the country in the future:

- further systematic integration of learning content with languages is needed;
- the widespread implementation of effective English courses for subject teachers, with an emphasis on the enhancement of conversational skills;
- higher educational institutions should conduct comprehensive training programs for the adoption of integrated education in the educational process;
- active informational and ideological propaganda of knowledge of the English language at the national level;
- It is necessary to embed mandatory adoption of CLIL elements and creation of a motivational environment for teachers in the regulatory documents of secondary schools.

### Stage 3. Developing a teacher development program on the use of technology CLIL

Conducting a study with a target focus group allowed developing a comprehensive advanced training program for subject teachers of "CLIL technology in secondary schools", designed to create a productive educational and creative environment for the professional development of education professionals in the transition to tri-lingual education. The program is aimed at improving the level of professional competences and the quality of pedagogical activity of educators in the field of trilingual education, and improving the quality indicators of teaching natural sciences in the regional educational system.

The content of the Comprehensive Program discloses the mechanisms for implementing the three subprogrammes of the Comprehensive Program. Each sub-program includes a 72-hour training course:

**Subprogram 1.** "Development of the professional level of physics teachers in mastering the methodology of "Content and Language Integrated Learning".

This routine assumes that at the end, students will:

know:

- The current state and main directions of state policy in the field of multilingual education;
- definitions of basic concepts, and principles of multilingual education;
- legal documents regulating multilingual education in general school;
- the specifics and features of the organization of the educational process based on the methodology of integrated teaching of the content and language;

be able to:

- determine the balance between language and subject in the field of goal-setting, the content of the lesson and the assessment of the educational activities of students;
- build CLIL-lessons based on the educational needs and interests of students;

- organize an interactive educational environment that meets the educational needs and interests of students and taking into account their age peculiarities;
- develop criteria for evaluating student learning at CLIL-lessons;

own:

- skills of organizing, planning and management of the educational process in the framework of the integration of language and subject (CLIL);
- applications of the inversion class in multilingual education.

**Subprogram 2.** Combined educational program of advanced training courses for teachers of English and physics "Development of professional competencies in mastering the "Content and Language Integrated Learning " for teachers of English and physics."

1) **know:**

- definitions of basic concepts, principles of multilingual education;
- The specifics and features of the organization of the educational process based on the methodology of integrated teaching of the content and language;

2) **be able to:**

- to build organizational and methodical measures, taking into account the age peculiarities and language competences of students;
- organize an interactive educational environment with the use of Teaching Tools for CLIL, which meets the educational needs of students;
- develop criteria for evaluating student learning at CLIL-lessons;
- develop and edit educational texts on the subject in English;
- reflect and analyze your own and other bilingual and trilingual lessons;
- analyze and determine the criteria for the selection of textbooks and authentic teaching materials;
- Plan and conduct CLIL-lessons.

3) **to own:**

- skills of organizing, planning and conducting the educational process in the framework of the integration of language and content (CLIL);
- the skills to develop and compile teaching didactic materials on the subject in English, taking into account age-related interests and peculiarities, and language competences of students;
- skills of working with various textbooks and study materials for CLIL;
- skills of analysis and selection of educational materials, taking into account the heterogenous language competence of students;

- analysis of the lesson according to the method of CLIL;
- the use of face to face and online technologies in multilingual education.

**Subprogram 3.** Educational program of development courses for physics teachers “Development of professional competencies in the application of information and communication technologies (ICT) at CLIL-classes”.

Participants study the necessary programs, online platforms, services, and getting acquainted with the methods of their use; Students acquire online platforms and principles of their functioning, which enable schoolboys (students) to independently or jointly participate in creative work, search, find the results of their work and critical thinking;

Participants will learn how to create computer games that increase student interest in the class;

Students work with the tools and services of mass implementation of methods and means of collecting, processing, distributing and storing information about educational technologies in practice.

## Conclusions

The work carried out within the framework of this Project allows to identify some aspects. The survey of the target group of school teachers and the joint work with the directors determined a high level of interest among teachers themselves, also students to subject-language immersion. On the other hand, there is a lack of a common understanding of the methodological approaches to the method of using CLIL. In this paper, an analytical review of the history and methodology of CLIL technology was conducted on the example of a number of European countries.

Ways of practical implementation of the creation of a national model for the application of CLIL technology are outlined. A target focus group from 18 general education schools in the Zhambyl region has been identified and arranged. A sociological study of school teachers was conducted, the results of which were a precondition for the creation of a subject terminological dictionary on the school course of physics. A special advanced training program has been developed and implemented for subject teachers in the physics course. Ways of further use of the practical results of the first year of the study within the framework of the Project have been outlined. Based on the analysis of international experience, it can be concluded that advanced training courses should be developed for practicing educators, the duration and intensity of which would allow, on the one hand, to become familiar with the CLIL methodology, on the other hand, to undergo training on-the-job.

The content of school teacher training using the CLIL methodology should not be limited solely to teaching a foreign language, but should include theoretical and methodological aspects necessary for the effective integration of new language

material and subject content within the framework of one lesson.

It's obvious that, as part of the application of the CLIL methodology, teachers will have to revise their own teaching experience. Training in this methodology should be practice-oriented.

The teacher should act as an organizer of joint activities and discussions, respecting the opinions and personal experience of students and creating conditions for their active participation during classes.

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