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Application of CLIL teaching methods in the educational process of physics lessons

Main goal of this article is to help learners more effectively acquire knowledge, skills and abilities for the development of the lesson structure of teaching in a foreign language. The article discusses proven methods surroundings of CLIL (subject and language integrated learning). For example, a particular tutorial, the author demonstrates how the structure and possibility of implementing of this methodology in the preparation of textbooks on foreign languages. It has been argued the necessity of creating such textbooks, books for students at the natural – mathematical direction. The article also discusses courses of the British Council for the teaching of a subject in a foreign language about the positive aspects of both teacher and student.

Keywords: information, methodology, integration, structure of the lesson, English language, foreign language teaching, CLIL, British Council.

Introduction. Multilingualism as an important direction of development of mankind has been aware for a long time. At the moment it is impossible to imagine that somewhere else there are countries where people had only one language. In reality, there are no civilized countries where only one nation. The normal functioning of any multinational state is very significantly the formation of bilingualism and multilingualism.

An important strategic objective of education in Kazakhstan is on the one hand, the preservation of the best of Kazakhstan educational traditions, on the other, ensuring that graduates of schools of international qualifications, the development of their linguistic consciousness, based on the master the state, native and foreign languages.

Kazakhstan pays great attention to the study of the languages of the people of this country. Here The Kazakh is the native language, and Russian the language of interethnic communication. Under the state program of a new generation of textbooks published in the country in six languages: Kazakh, Russian, Uigur, Uzbek, Turkish and German. Foreign languages are studied in all schools. Considering that training is carried out in the state, the Kazakh, the language of interethnic communication, Russian in schools, colleges and universities, and all educational institutions provide for the study, except for Russian, still at least one foreign language then we can say that Kazakhstan has already formed a bilingual situation and the trend of multilingual education [1].

«Kazakhstan is mainly established bilingualism as an essential part of the culture of interethnic communication. The man who owns in addition to his native language of another people able to communicate with a large number of people to join the material and spiritual wealth produced by native speakers of another nation, closer and deeper to get acquainted with its history, culture» [1].

In his address to the nation in 2009, «New Kazakhstan in new world» the President of the Republic of Kazakhstan N.A. Nazarbayev noted that in order to ensure the competitiveness of the country and its citizens proposed phased implementation of the cultural project «Trinity of languages», according to which it is necessary to develop three languages: Kazakh as the state language, Russian as the language of interethnic communication and English as the language of successful integration into the global economy [1].

We all know that the system of education in society and its state depends very much, almost, is the Foundation of the future society it is important to note the role of language which is the most important if not Central place in society and its system of relations. School as an educational institution, its ability to create and develop conditions for successful foreign language learning. That is why there are new educational technologies and one such technology is subject and language integrated learning called CLIL [2].

The abbreviation CLIL means Content and Language Integrated Learning - integration of foreign language teaching and other disciplines. For the first time the term was coined by David Marsh in 1994. This type of teaching characterized by learning situations where subjects or parts of subjects taught in a foreign language, thus pursuing a twofold objective: the study of the subject and the simultaneous mastering of a foreign language. Marsh continued his studies, and in 2001, the essence of the methods was interpreted in the

following way: CLIL considers learning a foreign language as a tool for studying other subjects, thus forming the student need in school, which allows him to rethink and develop their skills in communication, including in their native language.

This method is considered one of the most successful, as it allows you to combine the study of two or more items, one of which is a foreign language.

What's different about General English from subject and language integrated learning? General English involves the study of basic English. The learner's vocabulary, grammar, form the skills of reading, writing, listening. While the object-language integrated learning is that the listener is learning English through the subject and object through language. Language integrated General education program and knowledge of the language becomes a means of examining the content of the subject, thereby increasing students' motivation to use language in context when they are interested in the subject. Language learning becomes more purposeful as the language is used for solving specific communicative tasks. In addition, the essential skill is reading texts in a foreign language. Let's consider principle of 4 «C» CLIL methodologies: content, communication, cognition, culture. Like any other technology, this method has its pros and cons. First, by means of this technology the study of the English language becomes purposeful, because language is used for solving specific communicative tasks, increases motivation, forming social-cultural competence, and updated vocabulary of subject terminology. But to achieve these goals by the teacher of a foreign language increased demands. This study cannot fully replace the study of the subject in their native language but it can complement it significantly. Thus, the material for academic subjects must be chosen on the difficulty level slightly below the current level of students' knowledge on this subject in their native language. The selection of curriculum materials will depend on the structure of the course, a certain educational institution. Tasks on text processing must be built with a focus on subject content, involving students in the process of understanding, discussion of the main ideas of the text and check. The job should show the features of linguistic forms, to develop skill in their creation, use different types of testing and evaluation, such as self-control and mutual control. Assignments should encourage independent and creative activity of pupils, the communicative tasks for oral and written communication in a foreign language. Students should be familiar with union strategies for language, content and communicative difficulties [3].

Results and discussion. The main didactic unit in the CLIL methodology is a special text on the basis of investigation and study which is achieved the above objectives. The text as a source of information introduces the reader to a specific subject and is the basis of grammatical vocabulary module that provides the mastering of scientific vocabulary and specific grammatical, structural and stylistic designs. The text is also the starting point for discussion and extension of linguistic material on a given topic, while contributing to the formation and intensification of communicative skills of dialogical and monological speech. Thus method of subject and language integrated learning a foreign language covers the main types of speech activity, promotes student engagement in learning, develops their linguistic competence and enhances the academic motivation. Despite the fact that the method of CLIL for several years has been actively used in Western educational institutions in the former Council Union are talking about it relatively recently. As rightly pointed out by T.G. Lapteva, «using integrated method of teaching foreign languages in a technical University is a means of students' motivation for learning and an instrument of multilingual education. Effective work with special texts in a foreign language helps to provide the students with necessary linguistic and communicative competence in a second language and contributes to the continued development of their scientific knowledge and skills» [4]. It should be noted that this method is effective not only in a technical University, but also in any other non-linguistic higher school.

Work in class building, so that child would change the activity during the lesson, and therefore must consider the text as the basis for action. Each text attached politics by wordlist of specific terminology, various tasks, designed by level of difficulty and focused on subject content, its interpretation and subsequent use in creative unprepared speech, in particular, in the discussion on the topic. For example, when reading the following text, the students receive and fix a certain amount of knowledge used in physics [5].

Physics is one of the most ancient sciences about nature. The word «physics» takes its origin from the Greek word «phewsis» meaning nature. The development of other sciences depends in many respects on the knowledge of physical phenomena. Physics studies various phenomena in nature: mechanical motion, heat, sound, electricity, magnetism and light. Physics divides itself very naturally into two great branches, experimental physics and theoretical physics. The former is the science of making observations and devising experiments which give us accurate knowledge of the actual behaviour of natural phenomena. On the basis of experimental facts theoretical physics formulates laws and predicts the behaviour of natural phenomena.

Every physical law is based on experiments and is devised to correlate and to describe accurately these experiments. The wider the range of experience covered by such a law, the more important it is. Physics is divided into half a dozen or more different fields — mechanics, sound, heat, electricity and magnetism, light, molecular, atomic and nuclear physics. These different fields are not distinct but merge into each other. In all cases physics deals with phenomena that can be accurately described in terms of matter and energy. Hence, the basic concepts in all physical phenomena are the concepts of matter and energy. And it is important to determine accurately the characteristics of matter and energy, the laws that govern their transformations, and the fundamental relations that exist between them.

I. Find out the words in the dictionary. Write them down and learn.

Phenomenon, nature, natural, to depend on (upon), knowledge, theory, to devise, accurate, to formulate, law, to predict, on the basis of, to correlate, distinct, to merge, to deal with, in terms of, matter, hence, concept, to determine, characteristics, to govern, transformation, to exist, to indicate, investigation, to situate, to surround, to revolve, stable, solid, gas, liquid, plasma

II. Define the part of speech of the following words and translate them into Russian

a) physics – physicist – physical nature – naturalist – natural experiment – experimentalist – experimental theory – theorist – theoretical chemistry – chemist – chemical observation – observer – observational transformation – transformer – transformable indication – indicator – indicative

b) accurate – accurately mechanical – mechanically natural – naturally actual – actually central – centrally positive – positively negative – negatively

III. Find English equivalents in the text

1. various phenomena in nature _____
2. depends in many respects _____
3. physics is divided very natural _____
4. the two large areas _____
5. science to conduct observations _____
6. gives us accurate knowledge _____
7. formulates laws _____
8. using the concepts of matter and energy _____
9. consequently _____
10. the basic concepts _____

IV. Translate the following word combinations and noun groups into Russian.

1. Modern physical methods of investigation have shown that the atom consists of a centrally situated nucleus with a total positive charge surrounded by a number of electrons which revolve about the nucleus. 2. In a stable atom, the total positive charge of the nucleus is equal to the total negative charge of the electrons which surround the nucleus.

V. Fill in the missing words. 1. Physics is one of the most ancient ____ about nature. 2. The development of other sciences ____ in many respects on the knowledge of physical phenomena. 3. Physics divides itself very naturally into two great branches: experimental physics and ____ physics. 4. Experimental physics gives us ____ knowledge of the actual ____ of natural phenomena. 5. On the basis of experimental facts theoretical physics formulates _____. 6. Physics deals with phenomena that can be accurately described in terms of ____ and _____. 7. It is important to determine accurately the ____ of both matter and energy, the ____ that ____ their transformations. 8. Every substance can be divided into ____ known as molecules. 9. Modern physical methods of ____ have shown that the atom consists of a centrally situated ____ surrounded by a number of _____. 10. In a stable atom, the total positive charge of the nucleus ____ to the total negative charge of the electrons. 11. Matter can ____ in four states: solid, gas, liquid and plasma [5, 6].

Based on the analysis of this fragment of text: — to accentuate a certain subject-language a minimum of scientific terminology (observation, molecular nature, diffusion, matter, liquids, invisible motion) with the subsequent fixing by means of various types of jobs; — to identify structural units in scientific text, words and clichés that are used in scientific style (to measure, distributed throughout, appears) with a view to their subsequent assignment; — to consolidate students familiar form of this time (The Present Simple); — to foster the ability to express their point of view, to reasonably argue or debate, thus activating skills monologue and dialogue speech of students. Work on special texts involves the performance of a variety of written and oral tasks, while the teacher can select material in accordance with the structure of the discipline and specific learning objectives. However, the basic approach must be one in essence and based on subject and language integrated learning. The existing positive experience can serve as a basis for the development of the tradition

of making books and manuals on the methodology CLIL and to find use in the development of textbooks in English and Russian as a foreign language [7, 8].

Readers or books to read can be found on a variety of topics ranging from the structure of matter and ending with space exploration.

For each text there is a dictionary with meanings of difficult words as well as there are prepared tasks that can be used before, during, and after reading and listening text. Methodology CLIL implies the use of different charts, graphs, tables, contributing to the development of the ability to structure, analyse and classify information.

It follows that integrated learning focuses on vocabulary, on the content than on grammar and memorization of rules and from year to year, the recurring themes, it allows students to use a foreign language naturally, considerably increases the motivation to the learning process. Taking into account all factors this methodology will facilitate the implementation of the following goals and objectives: to develop communicative and linguistic competence of students; to increase the motivation to learn a foreign language; learn to use a foreign language freely as a means of solving everyday communication. The course is for primary and secondary school teachers who teach curricular subjects in English. Upon successful completion of this course participants will better understand and be able to:

- break down their instructions;
- evaluate language challenges in the classroom;
- use model language;
- develop enquiry-based learning;
- increase communication in English;
- Improve assessment methods and feedback.

There CLIL course you can find in link of British Council and consist from 2 modules which includes next title.

Unit 1 — CLIL aims and rationale: This first unit provides an introduction to CLIL and some of the ways in which it can be used in the classroom, helping teachers to find a balance between language and content in CLIL lessons.

Unit 2 — Language across the curriculum: Before we start teaching, there are always a number of things we have to consider. What is the lesson topic? What tasks do students have to do, and what language do they need in order to do these tasks and participate fully in the lesson? The focus of this unit is the language that students need in order to participate fully and effectively in the lessons.

Unit 3 — Communication skills across the curriculum: In this unit we will concentrate on functional language, and how we can help our learners by providing them with the necessary language to communicate.

Unit 4 — Cognitive skills across the curriculum: In this unit we are going to look at how we can help students develop their cognitive skills by looking at the cognitive demands of CLIL materials.

Unit 5 — Learning skills across the curriculum: The focus of this unit is to look at the different learning skills and strategies that we can help our students develop, so that they can use their knowledge and language effectively at all levels, and do this more confidently.

Unit 6 — Assessment unit: Principles of CLIL: A good understanding of the principles of CLIL will help you develop your skills to teach CLIL. This unit includes review, reflection and assessment.

Unit 2.1 — Planning a lesson and a series of lessons: Planning a CLIL lesson is in many ways similar to planning a non-CLIL lesson. You will need clear aims, a range of good activities, and step-by-step procedures. However, in a CLIL lesson, the balance of language and content and the type of CLIL approach to be used need to be carefully considered.

Unit 2.2 — Language demands of subject content and accompanying tasks: There is evidence that pre-teaching key vocabulary before reading or listening to new information helps understanding and retention. It's also been proven that it's easier for learners to acquire language when it's presented within authentic contexts (rather than using abstract sentences to demonstrate grammar). This unit will examine these issues for CLIL lessons.

Unit 2.3 — Resources, including multi-media and visual organisers: In order to make the most of their teaching, when teaching in a second language, teachers need to develop a range of ways to present or record information which can be adapted for use in many contexts. In a CLIL lesson, the use of visual organisers can help convey language and content in a friendly and meaningful way to students. This unit will look at how this can be done.

Unit 2.4 — Integrating technology: The use of information and communications technology is exploding around us. Do you embrace it or try to avoid it? This unit helps teachers become more comfortable with technology and learn how it can help you enhance your CLIL teaching.

Unit 2.5 — Material selection and adaptation: Authentic materials are often used in classrooms because they are up to date, relevant and can change the focus of the lesson into something more communicative and related to everyday life. In this unit you will see how to adapt authentic materials for a CLIL lesson.

Unit 2.6 — Activity types: There are a number of ways that we can exploit the information in our course book and supplementary materials in CLIL lessons. This unit looks specifically at the tasks and activities we can use to focus students on content.

Unit 2.7 — Classroom language: In this unit we will be looking at language that teachers use to concept check, check understanding and other classroom necessities for CLIL teaching.

Unit 2.8 — Scaffolding content and language: This unit looks at 'scaffolding' techniques that can be used in the classroom to support students and help them get the most out of the materials.

Unit 2.9 — Developing learning strategies: In this unit, we will look at what a good learner is and some ways to help students take more responsibility for their own progress.

Unit 2.10 — Consolidating learning and differentiation: Good teachers plan lesson time to give students opportunities to look back and recall what they have been learning. Effective activities for consolidation can be varied, enjoyable, and should take different learner levels into account. This unit will look at how to do it.

Unit 2.11 — Introduction to assessment: Many teachers are stuck in a rut in terms of student assessment. What can seem like a simple testing process in the eyes of students (and sometimes their parents too) is actually quite complex, with many methods, features, and outcomes. This unit looks at some of these areas in relation to CLIL.

Unit 2.12 — Types of assessment: In the previous unit, we looked mainly at different types of assessment tasks. In this unit, we will focus more on types of assessment.

Unit 2.13 — Support strategies: This unit will introduce techniques that the CLIL teacher can use in order to be a support to their students, and to remove some of the obstacles that can prevent effective testing.

Unit 2.14 — Summary and assessment: In this unit, you will consider how best to help some individual learners, do a review quiz, and as a final assignment, plan a CLIL lesson.

Develop the skills you need to integrate English and subject content in your lessons and create the most effective learning environment for your students [6].

We know that many teachers have good knowledge of their subject area but lack the confidence and experience needed to conduct lessons effectively in English. This course will give you comprehensive training in CLIL methodology and practical ideas so you can develop your learners' English and subject knowledge at the same time.

The experienced British Council teacher trainers will provide the input and individual feedback you need to develop. The course of British Council is online; you can take a part in professional discussions with other language teachers and experts at a time that suits you [3]. Application of this technique in practices it possible to identify its advantages, as well as some problems of its implementation in the educational process. One of the main advantages of this method is increase the motivation to learn a foreign language from the students. Language learning becomes more focused as the language used to address specific communicative tasks. Once in the situation of communication in a foreign language, students are unable to demonstrate their knowledge in specialized areas such as: construction, education, medicine, culture and art, etc. without the knowledge of a foreign language. This means that they do not have the opportunity to communicate in a professional context. Thus, the ability to communicate in a foreign language in a professional context, becomes a priority. In addition, students have the opportunity to get to know and understand the culture of the target language, which leads to the formation of social competence of students. The student passes through a sufficiently large amount of linguistic material, which is a complete immersion in the natural language environment. It should also be noted that the work on a variety of topics allows you to learn the physical terms, certain language constructs that contribute to the replenishment of the vocabulary learning of subject terminology and prepares it for further study and application of acquired knowledge and skills.

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Ж.Ш. Куралбаева, А.С. Кудусов, А.З. Бейбитова

Білім үрдісіндегі физика сабағында CLIL оқыту әдістемесін қолдану

Мақаланың негізі мақсаты білім алушыларға көмек көрсету, пәнді шетел тілдерінде оқыту кезінде сабақтың құрылымын жасау бойынша білім, білік және дағдыларды аса тиімдірек игеру болып табылады. Авторлар өздері ұсынатын CLIL (пәндік-тілдік кіріктірілген оқыту) әдістемесі негіздерін қарастырған. Мысал ретінде физика бойынша оқу құралдарын құрастырған кезде осы әдісті жүзеге асыру мүмкіндіктері мен құрылымы белгілі бір оқулықты көрсетті. Жаратылыстану-математика бағытында оқыту үшін оқу құралдары, ұқсас оқулықтар құрастыру қажеттілігі жайлы айтылды. Сонымен қатар пәнді шетел тілінде оқыту жөнінде Британдық кеңес курстары, оқушылар мен мұғалімдер үшін де жағымды жақтары туралы сөз қозғалды.

Кілт сөздер: ақпарат, әдістері, кірігу, сабақтың құрылымы, ағылшын тілі, шетел тілін оқыту, CLIL, Британ кеңесі.

Ж.Ш. Куралбаева, А.С. Кудусов, А.З. Бейбитова

Применение методики обучения CLIL в образовательном процессе на уроках физики

Основной целью статьи является помощь обучающимся более эффективно овладеть знаниями, умениями и навыками по разработке структуры урока при преподавании предмета на иностранном языке. В статье рассматривается зарекомендовавшая себя методика CLIL (предметно-языкового интегрированного обучения). На примере определенного учебника автором демонстрируются структура и возможности реализации данной методики при составлении учебных пособий по физике. Высказывается мнение о необходимости создания подобных учебников, пособий для обучающихся по естественно-математическому направлению. Также в статье рассматриваются основные положения курсов Британского совета по преподаванию предмета на иностранном языке, показаны их положительные моменты как для учителя, так и для ученика.

Ключевые слова: информация, методика, интеграция, структура урока, английский язык, преподавание иностранного языка, CLIL, Британский совет.

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