ARTICLE TITLE	CONTENT AND LANGUAGE INTEGRATED LEARNING (CLIL) IN TEACHING IT STUDENTS ENGLISH FOR SPECIFIC PURPOSES (ESP)
ARTICLE INFO	Tetiana Andriichuk, Ludmyla Lazorenko, Nataliia Doronina. (2024) Content and Language Integrated Learning (CLIL) in Teaching IT Students English for Specific Purposes (ESP). *International Journal of Innovative Technologies in Social Science*. 4(44). doi: 10.31435/ijitss.4(44).2024.3099
DOI	https://doi.org/10.31435/ijitss.4(44).2024.3099
RECEIVED	29 September 2024
ACCEPTED	01 December 2024
PUBLISHED	05 December 2024
LICENSE	The article is licensed under a **Creative Commons Attribution 4.0 International License.**

CONTENT AND LANGUAGE INTEGRATED LEARNING (CLIL) IN TEACHING IT STUDENTS ENGLISH FOR SPECIFIC PURPOSES (ESP)

Tetiana Andriichuk
Taras Shevchenko National University of Kyiv, Kyiv, Ukraine
ORCID ID: 0000-0002-0192-1130

Ludmyla Lazorenko
Taras Shevchenko National University of Kyiv, Kyiv, Ukraine
ORCID ID: 0000-0002-0067-7471

Nataliia Doronina
Taras Shevchenko National University of Kyiv, Kyiv, Ukraine
ORCID ID: 0000-0002-6834-725X

ABSTRACT

The article is devoted to the study of effective modern methods of planning a practical foreign language lesson for students of IT specialties, the necessity of finding the optimal organization of a practical EFL lesson taking into account the specifics of the IT sphere is shown. The article analyzes the current research of prominent scientists in the field of CLIL (Content and Language Integrated Learning), or subject- and language-integrated learning, which makes it possible to combine learning a foreign language with another academic subject. The advantages of using this methodology in a higher education institution are highlighted on the basis of the author's own experience. Practical examples of exercises for learning English academic terms, creating presentations, etc. for the effective development of 21st century skills (critical thinking, creativity, teamwork) are given. The key principles of CLIL as an innovative approach to teaching students and the theoretical basis are discussed. Based on Bloom's Taxonomy, specific key components and words are presented and described in detail to help formulate questions and plan lessons. The tasks that help to develop interesting and meaningful classes for IT students in higher education, which will be in demand in the labor market in the future, are detailed.

Introduction.

The application of informational means, technical and digital technologies in life poses an urgent question about the combination of professional knowledge, subject-language and general language competences in teaching a foreign language to IT students in higher educational institutions. The CLIL (Content and Language Integrated Learning) method, or subject-language integrated learning, makes it possible to combine the study of a foreign language with another educational subject. Based on our experience of teaching a foreign language to IT students, we implement the methodology during the training of students in professional English. The advantages are obvious: interesting content and necessary information for further development motivate students and lay a linguistic base that can be used both during classroom and independent work. The main emphasis is not on language learning, but on the study of specialized disciplines.

At the same time, English is well learned in the "background" mode. Thanks to the application of the CLIL method, all the main aspects of language learning are covered, since the material is presented not only in the form of texts and scientific articles, but also in audio and video formats. In addition, the performance of written tasks, the presentation of projects involves the improvement of oral and written communication skills. Thirdly, students apply the acquired knowledge, that is, there is a constant practical application of the English language. Another plus is that, at the same time, a significant database of English academic terms is developed, which will be useful to those who are going to continue their education abroad. CLIL helps students develop such necessary skills as perceiving information and expressing their thoughts in English, develops and improves the ability to argue their point of view in English, which is also the basis for the development of 21st-century skills such as the ability to think critically, be creative, communicate and collaborate. Furthermore, by focusing on content, CLIL lessons add an extra dimension to the classroom and engage students, which is particularly beneficial in situations where students are not enthusiastic about learning the language. CLIL also promotes a deeper level of learning because learners are repeatedly exposed to similar language and language functions and need to produce and recall information in their second language. In the first year, the use of the CLIL methodology brings some variety to the curriculum, makes it possible to increase the level of motivation and involvement of students, as well as to show clearly why they need English. CLIL - subject-language integrated learning or a professional subject in English - is enshrined in the new Law on Education.

History, International Experience of Use.

Content and Language Integrated Learning (CLIL) is a two-pronged approach to learning: using language to learn and teach content and foreign language at the same time [2]. CLIL is not a new form of learning a foreign language or a subject - it is an innovative technology that combines many methods implemented before CLIL. Among such methods: [8]:

- CBI – Content-based instruction;
- CBLI – Content-based language instruction;
- CBLT – Content-based language teaching;
- Dual-focused language education;
- LAC – Language across the curriculum;
- TFL – Teaching through a foreign language;
- TBE – Transitional bilingual education;
- WAC – Writing across curriculum.

According to Dale [3], CLIL is the result of the influence of the ideas of bilingualism, the ideas of learning a foreign language as a second, the theory of cognitive learning and constructivism. Coyle, Hood and Marsh [2] note the impact of bilingual education and language immersion, as well as language learning through content.

The principle of learning a foreign language through subject content was highlighted by two prominent teachers of Central Europe. The first of them is the famous pedagogue of Czech origin Jan Amos Kamensky, who emphasized the importance of effective teaching of foreign languages. The next teacher to be mentioned is Matthias Bel (of Slovak origin). He was a teacher and director of two grammar schools located in a multilingual region with German, Hungarian, Slovak and Czech languages active, where he aimed to facilitate the learning of foreign languages. For Bel, language is a means of mastering the subjects of the curriculum. His motto: "Teach with words to learn about reality and the world around." His Latin students had to describe different routes through the Latin verb constructions "Enter the cave, climb it, measure it." He tried to organize age-appropriate lessons, using many pictures, maps, visualized stories, and thereby stimulated the active imagination of students. Matthias Bel also worked on the development of communicative competence in all languages used in the region (German, Hungarian and Czech). He reduced the number of grammatical rules to a minimum and focused students' interest on the culture of the countries of the languages being studied, including texts of geographical, historical and legislative content.

Canada was one of the first countries to introduce bilingual programs. Around 1965, a group of English-speaking parents living in Quebec felt it necessary to create a kindergarten curriculum that would enable their children to: 1) learn to speak, read and write French; 2) achieve adequate results in academic subjects (including English); 3) appreciate and respect the culture of French- and English-speaking Canadians [1]. They appealed to the authorities to solve this problem. As a result, programs for learning a foreign language by immersing students in the language environment appeared in Quebec schools.

In the 1970s and 1980s the term "immersion in the language environment" began to be used as a synonym for bilingual education.

In 1966, a different way of learning foreign languages appeared in England: the so-called LAC (Language Across the Curriculum) – the use of inter-subject connections regarding a foreign language. The idea of creating a technology was born from secondary school teachers who began to think about how important the role of discussions during English lessons is. It all began with a discussion of how thought is formulated in language, what functions language performs in society, and how people acquire a foreign language [7].

The idea of LAC turned out to be very consistent and logical, which led to its rapid spread in England, Australia, and Canada. In the United States of America, the approach has been used only partially: for the development of writing skills (WAC). A subject-oriented approach (CBI - Content-Based Instruction) and bilingual training programs were used as a method of integrating the simultaneous study of content and language in the USA.

In 1983, the European Parliament issued an order to promote a new program to improve the quality of foreign language teaching. The program began to spread rapidly, and some schools with state support began to teach subjects in a foreign language. The example was followed by the countries of the European Union, introducing programs of integrated learning of subjects with the help of a foreign language. Language immersion programs were not very effective in countries like Slovakia, where it was necessary to increase the use of the mother tongue, which played a very important role in the formation of the country. It can probably be argued that the European teachers did not consider the cultural and linguistic differences between Europe and Canada.

The acronym CLIL was created by David Marsh, one of the researchers working in the field of multilingualism and bilingual education at the University of Jyväskylä, Finland, in 1994. According to Marsh, the need to approve CLIL in Europe during 1994 was due to developments in the political and educational fields. The political driving force had the opinion that social mobility in the European Union required a high level of foreign language competence. In the educational field, the goal was to create and implement existing teaching methods (using the example of Canada) to educate more competent students.

In 2005, David Marsh proposed CLIL as a general term for different methodologies of a two-way nature, in which attention was paid to thematic content and language learning [5].

In 2006, Eurydice reported that CLIL education is available in most European Union countries. By 2007, CLIL had begun to be used in twenty European countries. This information was contained in the work "Windows on CLIL" by Malliers, Marsh and Wolff. Most of the methods discussed in the work were implemented in secondary schools, and only a part of them - in primary schools (in Austria, Finland, Hungary and Spain) [4].

During the last decade, CLIL research, at least those focused on the linguistic side of technology, has rapidly accelerated thanks to researchers from various disciplines: linguists, pedagogues, psychologists, neurologists, etc. Also, research on students' study strategies and thinking skills was added to the two-way learning objectives (language and subject content) [6].

Theoretical Basis.

David Marsh, Do Coyle and Philip Hood codified the principles of CLIL, namely dual-focused education, using language across the curriculum and making content king. Unlike traditional language teaching strategies, CLIL promotes education through construction rather than instruction. It's aiming for fluency, not accuracy. [10,11].

The term CLIL was coined by David Marsh, University of Jyväskylä, Finland (1994): "CLIL refers to situations where subjects, or parts of subjects, are taught through a foreign language with dual-focused aims, namely the learning of content and the simultaneous learning of a foreign language."

1. 2. content communication cognition culture. It integrates the teaching of content from a curriculum subject with the teaching of a non-native language.

2. Content: Progression in knowledge, skills and understanding related to specific elements or defined curriculum. Communication: Language triptych *Language of learning. * Language for learning. *Language through learning. Cognition: The process involved in thinking. Teachers must help learners to build up their own learning. * Bloom's taxonomy * Lower order of thinking(LOTS). * Higher order of thinking (HOTS). Culture: Exposure to alternative perspectives and shared understandings. Self, other awareness, identity, citizenship and progression towards pluricultural understanding.

3. Multiple focus approach Safe and enriching learning enviroment Authenticity Active learning Scaffolding Cooperation

4. Help students to gain the language needed to manipulate content from other subjects. • Reinforce the acquisition of content. • Through teachers' Help students will develop learning skills. • Teachers provide students with the vocabulary, terminology and texts of other subjects. • Using a new language to communicate.

• Getting used to a new way of learning. • Cooperating with their classmates. • Using the new language to study contents. • Improving their Reading, listening, wrting and speaking skills.

5. Learning is active whenever is possible. • Materials and communication are authentic. • Close collaboration between teachers is important. • Learning needs to be scaffolded and supported. • Language is used to learn as well as to communicate. • Subjects determine the language needed to learn. • Placing equal emphasis on content learning and language learning.

6. Development of intercultural communication skills. • It provides opportunities to study content through different perspectives. • Increase of learners' motivation and confidence. • Cooperation among teachers. • Development of thinking skills. • Students are in contact with the target language.

CLIL is dual-focused encompassing both subject or thematic and language development although, depending on the context and variables within, there may be a predominance of one over the other but never exclusion. However, it is the interpretation of the integration of content and language in CLIL which has major implications and impact on the development of CLIL pedagogies.

Main Part.

The essence of CLIL can be summed up by the 4 C's: *content, communication, cognition and culture*. Each of these is a basic component in every CLIL lesson. Content refers to the basic topical knowledge being taught to and learned by our students in any given lesson.

It is important to have a strategy for applying CLIL in your courses. One of the key things to remember is that language and subject content are given equal weight, and that this should not be seen as a language lesson, or a subject course simply taught in a foreign language.

According to Coyle's 4Cs model (1999) [13]., a successful CLIL lesson should include the following four elements:

1. **Content** – the development of knowledge, skills and understanding related to specific elements of a defined curriculum.

2. **Communication** - using language to learn while learning to use language.

3. **Cognition** - the development of thinking skills that connect the formation of concepts (abstract and concrete), understanding and language.

4. **Culture** is contact with alternative views and common understanding, which deepens awareness of otherness and self.

Using a range of frameworks can help you prepare your lessons and ensure that the tasks are challenging but achievable for your students.

Bloom's Taxonomy, for example, classifies learning objectives in education and places skills in a hierarchy, from lower-order thinking skills (LOTS) to higher-order thinking skills (HOTS). [12,14].

https://www.vanderbilt.edu/
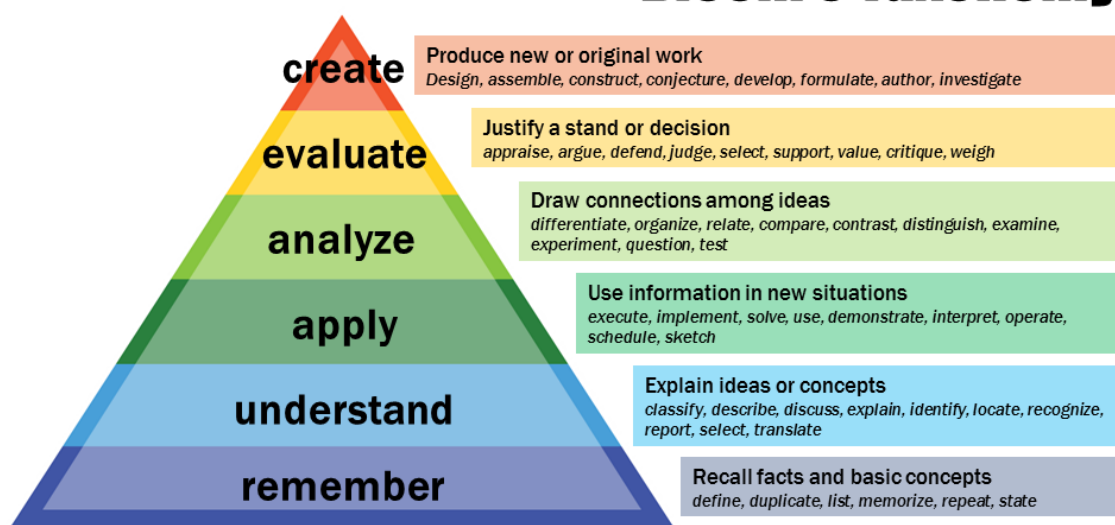
The framework shows how different tasks relate to different levels of mastery. This is quite intuitive, but applying this information to prepare for the lesson is not always so easy.

This is where the Blooming Verbs list of verbs comes in handy. [15]. The following table shows how different verbs can relate to different stages of the taxonomy, allowing you to formulate questions and plan activities that will logically develop your CLIL classes.

☀ Blooming Verbs List ☀

Remember	Understand	Apply	Analyze	Evaluate	Create
name	predict	solve	examine	choose	create
tell	explain	show	compare	decide	invent
list	outline	illustrate	contrast	recommend	compose
describe	discuss	complete	investigate	assess	plan
relate	restate	examine	categorize	justify	construct
write	translate	use	identify	rate	design
find	compare	classify	explain	prioritize	imagine

SmartTutor   www.LearningToday.com

https://learningtoday.net

By using the verbs in the first column you'll see how much they remember about a topic you have covered previously. Examples might include:
- *Can you name three different types of jungle animal?*
- *Can you tell me how often a python eats food?*
- *Can you describe what it's like in the rainforest?*
- *You can then do the same for the subsequent stages of the taxonomy.*

The verb chart can also help you design a class project or series of activities that follow a logical sequence using the ***"Students will be able to…" (SWBAT)*** framework. This will help you set clear objectives and check progress towards the end of a class, series of classes or course.

Here's an example of how you can develop a set of objectives using the verb columns to help you navigate Bloom's Taxonomy:
- *SWBAT name 10 different animals that live in the rainforest*
- *SWBAT predict what animals eat*
- *SWBAT complete a simple food chain*
- *SWBAT categorize animals into different classifications (mammal, reptile, fish etc.)*
- *SWBAT recommend ways to protect an endangered species*
- *SWBAT create a new habitat for an endangered species of their choice*

In this way you will be able to scaffold your materials to ensure that your students are supported step by step while learning subject matter and achieving language learning objectives.

https://images.app.goo.gl/LGamqn4KeCfA9hAy8
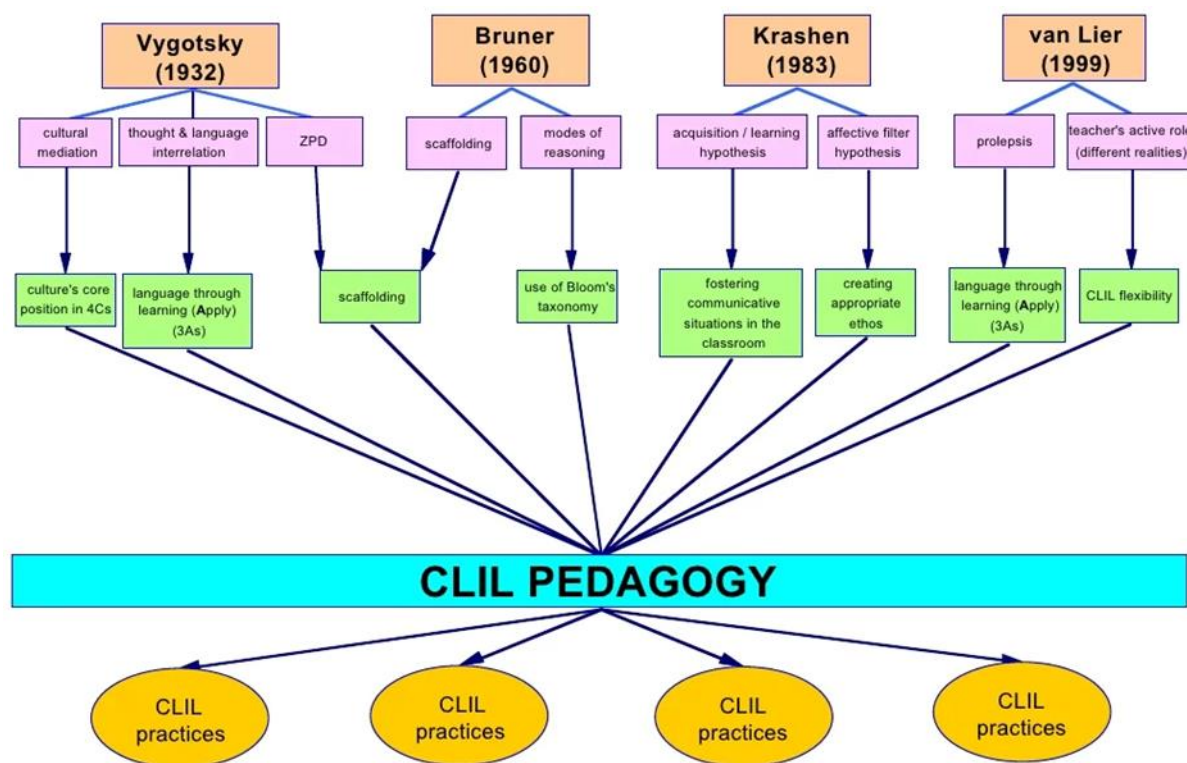
The Practical Part.

There are many resources on the web with CLIL materials, but we believe that it is better to focus on your own students and their needs, on the material that will be useful to them. Of course, our teachers do not conduct a full course of programming or computer science in English, but take an interesting topic from the specialty and prepare a kind of task-based lesson.

CLIL teaching materials (programs, texts, exercises...) for second-year students were prepared by foreign language teachers of the faculties... Teachers worked in tandem (an English teacher and a subject teacher?) and created materials on a specific topic for their own classes. The materials provided below have been tested in classes and are offered by us for use in the work of professional foreign language teachers.

Planning.

What should you pay attention to when planning CLIL lessons?

The first thing we start working on is the selection of topics, which we coordinate with teachers of specialized subjects. Next, it is necessary to help students with thematic vocabulary, that is, there should be a vocabulary list, a text or a video on the topic (or better both), tasks to check the understanding of the vocabulary. In addition, a mandatory element of an interesting CLIL lesson is the "free creativity" of students. That is, you need tasks from the subject you have chosen, where students could search for something on the Internet, conduct an experiment and talk about it.

Accordingly, it is necessary to provide students with technical means of learning: computers for searching, tables and diagrams that they must fill in or draw, and materials for discussion.

We use the CLIL methodology when preparing projects such as:

• **"Cybersecurity"**: firstly, some fundamental concepts of cybersecurity are explored, including encryption, malware, network security and data privacy. Then students are taught cybersecurity terminology and concepts in English, focusing on vocabulary related to threats and defenses. As a creative part, we conduct group discussions on cybersecurity issues and best practices, encouraging students to analyze and discuss real-world examples in English.

• **"Web Development and Design"**: we introduce students to principles of web development, HTML and CSS, teach web development terminology and design principles using English language materials and then

ask students to design and develop their own websites or web applications and present their projects in English through presentations as well encourage peer feedback to improve both technical and language skills.

- **"Artificial Intelligence"**: Students are introduced to the principles of artificial intelligence (AI), and taught AI terminology, algorithms and concepts using English language materials. Furthermore, we engage students in projects and experiments where they implement AI algorithms, analyze and evaluate performance with further discussion of their findings and insights in English.

- **"Programming Languages"**: we introduce students to different programming languages frequently used in the IT industry, for instance, Java, Java Script, Python, C++, and teach programming concepts and syntax using English language materials. Moreover, we engage students in coding exercises, debugging tasks projects to reinforce both programming skills and English language proficiency.

Students like the fact that they are simulating adult life.

Conclusions.

Successful training of IT students is based on the following three pillars:

- CLIL: The course includes new Content Connection and Culture Connection pages, which will not only introduce your students to relevant language, but will also help them learn about new cultures and traditions.

- Assessment for Learning (AfL): With a strong focus on measuring progress, Big English offers a new look at AfL through checks and tests in the Student's Book and the Workbook.

- 21st Century Skills: Finally, 21st Century skills form the bedrock of this course and the "Think Big" sections are designed to help students develop essential critical thinking, collaboration, communication, creativity and digital literacy skills.

Difficulties in the implementation of the CLIL methodology are not significant: insufficient number of qualified teachers and the lack of opportunities to improve the qualifications of specialists, difficulties in choosing teaching materials, and public opposition. [9].

REFERENCES

1. Baker, C. & Jones, S. P. (1998) Encyclopedia of Bilingualism and Bilingual Education. Clevedon: Multilingual Matters., 496
2. Coyle, D., Hood, P. & Marsh, D. (2010). CLIL: Content and Language Integrated Learning. Cambridge: CUP.
3. Dale, L., Van Der ES, W. $ Tanner, R. (2011). CLIL Skills. Leiden: European Platform (Internationalising education), 19-21
4. Kovacs, J. (2014). CLIL – Early competence in two languages. The world at their feet: Children's early Competence in Two Languages through Education (p.15-97). Budapest: Eötvös József Könyvkiadó., 51
5. Marsh. D. (2012). Content and Language Integrated Learning (CLIL). A development trajectory. Cordoba: University of Cordoba, 48-49
6. Mehisto, P., Marsh, D. & Frigols, M. J. (2008). Uncovering CLIL. Content and Language Integrated Learning in Bilingual and Multilingual Education. Oxford: Macmillan Education.
7. Parker, R. (1978). The Language Across the Curriculum Movement: A Brief Overview and Bibliography. College Composition and Communication (p. 173-177), 173
8. Richards, J. C. & Rogers, T. S. (2014). Approaches and methods in Teaching. Cambridge: CUP.:
9. https://uk.wikipedia.org/wiki/%D0%9F%D1%80%D0%B5%D0%B4%D0%BC%D0%B5%D1%82%D0%BD%D0%BE-%D0%BC%D0%BE%D0%B2%D0%BD%D0%B5_%D1%96%D0%BD%D1%82%D0%B5%D0%B3%D1%80%D0%BE%D0%B2%D0%B0%D0%BD%D0%B5_%D0%BD%D0%B0%D0%B2%D1%87%D0%B0%D0%BD%D0%BD%D1%8F
10. https://www.fluentu.com/blog/educator/clil-classroom/
11. https://www.fluentu.com/blog/educator/clil-method-of-teaching
12. https://www.researchgate.net/figure/Coyles-4Cs-model-Exposure-to-language-is-thought-to-be-essential-in-CLIL-as-it -is_fig2_322539710
13. https://www.researchgate.net/publication/251514228_Higher-Order_And_Lower-Order_Thinking_Skills_Achievement_In_Secondary-Level_Animal_Science_Does_Block_Scheduling_Pattern_Influence_End-Of-Course_Learner_Performance
14. https://www.teachingenglish.org.uk/blogs/sakilandeswari/higher-order-thinking-skills-hots
15. https://www.teachthought.com/critical-thinking/blooms-taxonomy-verbs/