

# Technology of Integrated Foreign Language Teaching at University



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**Abstract:** This article analyzes the procedural characteristics of three main approaches to teaching foreign languages at non-linguistic universities, including English for specific purposes prevailing in the professional language education of today's Russia, communicative language teaching mostly used for teaching general English and content and language integrated learning gaining popularity in the existing academic environment. The study is relevant because available foreign articles on content and language integrated learning, as well as Russian scientific works on modeling content and language integrated environment at non-linguistic universities do not cover the implementation of the above-mentioned approach. The authors of the article believe that the absence of specific instructions and ready-made solutions for implementing a foreign language and its content in institutions of higher education hinders the introduction of this promising approach. Accordingly, the authors have set an objective to distinguish procedural characteristics of these three approaches (with emphasis on content and language integrated learning) and referred to specific examples to demonstrate similarities and differences in their implementation. To this end, the authors have selected certain subject and language content, thoroughly analyzed it and compiled procedural characteristics of lessons for each approach. To sum up, the authors analyze the results obtained and substantiate the existing similarities and differences in the implementation of the above-mentioned approaches. The authors conclude that this information can be useful for beginning teachers who want to upgrade traditional approaches of teaching a foreign language at universities to integrated learning since this article enables them to compare not only theoretical and methodological foundations of these methods but also ways of their implementation. In addition, teachers engaged in content and language integrated learning can use procedural characteristics for self-control and further professional development.

**Index Terms:** CLIL, content and language integration, integration learning, non-linguistic university, procedural characteristic.

## I. INTRODUCTION

Nowadays, language pedagogy as a science is influenced by a number of factors, including globalization, the digital revolution, Russia's entry into the global innovation economy, as well as changes in the nature of knowledge and ways to obtain it. Global trends comprise the mass formation of the so-called "multicultural communities", which makes education multilingual and multicultural. In this regard, society needs to form communicative and intercultural competences of future specialists (non-linguists) in the sphere of foreign language communication. It means that the principles, objectives and tasks of language education should be also altered. In favor of the popular trend called "lifelong education", methods of teaching a foreign language in Russia acquire new features, such as a focus on global trends and use of new educational technologies with emphasis on the further possibility of self-education and prominent intercultural orientation. A future specialist should master the following competences: the ability to communicate using a foreign language in the intercultural environment; skills to process the information obtained in a foreign language; reflexive competences; the tendency to self-knowledge and self-improvement throughout one's life. Describing the personal qualities under formation, we should note the most popular of them: tolerance to representatives of other cultures; creativity; openness to everything new; sociability; mobility; critical thinking; the ability to represent one's country during professional intercultural communication conducted in a foreign language. Consequently, institutions of higher education have to respond to modern educational challenges and create conditions for the formation of new competences related to professional intercultural communication in a foreign language. Meanwhile, many non-linguistic universities and non-linguistic faculties of classical universities are developing a new linguo-didactic concept based on the internationalization of education, development of academic mobility of teachers and students and other ideas of the Bologna Process. On the one hand, this concept reflects modern views on the interrelation of education and culture.

Revised Manuscript Received on August 30, 2019.

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On the other hand, it represents education as a method of forming the personality of a future specialist capable of intercultural communication and professional interaction in a foreign language environment. The concept is called content and language integrated learning (CLIL).

### II. REVIEW OF THE RUSSIAN AND FOREIGN LITERATURE

In recent years, the so-called integrated bilingual education has gained popularity in scientific literature, which completely changed the role of a foreign language in the system of vocational education. CLIL is among the ways to implement it and originates from the European educational tradition. The term "content and language integrated learning" was introduced by the European scholar D. Marsh in 1994 [1]. Integrated approaches became widespread in European secondary schools and at first implied teaching of various disciplines in a foreign language (mostly English). In 2001, this approach was reconsidered and D. Marsh proposed to regard a foreign language not as a goal but as a means of gaining knowledge of other disciplines [2]. D. Coyle represented the objective of CLIL as dual, including the simultaneous study of some discipline and a foreign language [3]. The theoretical foundations of CLIL were also explored by such scholars as O. Meyer, T. Ting, V. Pavon, P. Hood, etc. While collaborating with D. Marsh and P. Hood, D. Coyle determined four fundamental principles of CLIL – 4C [4], which are reflected both in the theory and implementation of CLIL. T. Ting studied differences between language immersion programs popular in North America and content and language integration [5]. She discovered that the main distinguishing feature of CLIL is its educational support that is crucial for the student's progress in mastering the content of a foreign language. Currently, CLIL is already considered as a prerequisite for the high-quality training of future specialists in Russian non-linguistic universities. Thus, Russian teachers are more inclined to a certain kind of CLIL – integrating language and content in higher education (ILCHE). Moreover, we should emphasize that CLIL at universities is not reduced to using English as a medium of instruction (EMI) but is associated with teaching some discipline with the help of this language. Some Russian universities are currently experimenting with CLIL. For example, a group of researchers at Peter the Great St. Petersburg Polytechnic University, including N.I. Almazov, L.P. Khalyapina and T.A. Baranova, compared the teaching of English for specific purposes (ESP) and CLIL [6], [7]. They determined the distinctive features of each approach and provided their linguo-didactic characteristics. E.K. Vdovina is engaged in the development and implementation of a model combining economic disciplines and academic English. She proposed a step-by-step program of integrated courses starting from the first year of undergraduate studies to form the student's communicative competence in a foreign language [8]. A group of scholars led by L.L. Salekhova at Kazan Federal University studies the implementation of CLIL from the cognitive perspective. Interestingly, the scientists consider the interaction of three languages: Tatar and Russian perceived as native, English regarded as foreign and the language of

mathematics [9], [10]. L.L. Salekhova and her followers (K.S. Grigorieva and R.R. Zaripova) raise the question of forming bilingual competence [11], [12]. E.G. Krylov [13] working at Kalashnikov Izhevsk State Technical University analyzes specific engineering competences and supplements them with professional communicative competence in a foreign language consisting of two blocks – professional and linguistic. He notes that integrative communicative competence should be an integral part of professional competence since the professional activity is impossible outside the scope of written and oral communication. T.S. Serova from Perm National Research Technical University [14] developed a concept for forming the future specialist's language, speech and communication culture based on professionally oriented CLIL. The scholar focused her research on foreign texts as the source of information on a certain discipline and teaching students how to work with this information. Scholars S.A. Gudkova and D.Yu. Burenkova from Togliatti State University [15] suggested their own phased scheme for implementing CLIL at universities and a step-by-step plan for integrated lessons. They also provided examples of the correct selection of educational content.

### III. PROPOSED METHODOLOGY

#### A. General description

Russian and foreign scholars carried out significant work on the development of integrated learning models and identification of competences and skills formed through CLIL. They also offered a model and structure of the future specialist's competence obtained in the course of professional education using integrative technologies.

In 2018, leading Russian scientists in the sphere of integrated education published a collective monograph that combines the existing experience and creates a theoretical and methodological basis for the further study of this issue [16].

Given the experience of implementing integrated education in Russian universities, we can safely say that the actual realization of the CLIL or ILCHE principles is not unified, which greatly reduces the possibility of their ubiquitous distribution and implementation.

Thus, we aim to analyze the implementation of CLIL, provide a procedural description of CLIL and exemplify it by real-life cases.

#### B. Algorithm

We consider procedural characteristics of the classical approach to teaching a foreign language at a non-linguistic university that is called "English for specific purposes" in Russia. The founders of this approach are T. Hutchinson and A. Waters [17] who concluded that professionally oriented English was the result of a new look at foreign language teaching in a specific communicative situation. Consequently, it is necessary to use a certain linguistic layer in different types of communication, for example, business communication.

According to T. Dudley-Evans and M. Saint-John, a foreign language began to be regarded as a means of accessing the world market for goods and technologies due to new historical conditions developed after World War II [18]. Thus, ESP has become a kind of English that promotes successful communication between specialists from various professional fields.

Lessons are usually built around professionally oriented texts. The work begins with the pretext stage where the focus is laid on the study of professional vocabulary: students should master phonetics based on multiple repetitions and lexical meanings through using new words in phrases and sentences, as well as in translation. The pretext stage often presents new grammatical structures, provides exercises for recognizing these structures and translating them into Russian. It also comprises "open the brackets" tasks and Russian-English translation. At this stage, much attention is paid to the formation of the student's lexical and grammatical skills to avoid any difficulties in studying the main text.

The key element of any given lesson is the work with texts. Texts are usually selected with due regard to the student's training program but in most cases, these texts are not authentic and are compiled specifically for educational purposes. The main method of working with texts is to read them aloud and translate into Russian. Taking into account the communicative component of such a task, texts can include reading for gist tasks, scanning tasks and a number of question/answer or true/false exercises (reading for detail tasks). The above-mentioned exercises aim to thoroughly test reading comprehension.

The post-text stage is concerned with the verbalization and practicing of lexical materials and grammatical structures and aims to prepare students for further oral and written communication on this topic. Exercises can be of different types starting with the compilation of sentences and ending with the formation of oral or written reports on the topics given in advance. The main work forms are teacher-centered methods of engaging with a group or an individual.

We decided to compare the main elements of working with texts in ESP with communicative language teaching (CLT). D. Hymes is considered the author of the latter method. In the 1960s, he proposed and theoretically substantiated the concept of "communicative competence" that is revealed through the proper and adequate use of language in a given situation of communication [19]. The communicative approach quickly gained popularity throughout the world. Theoretical and methodological foundations of CLT teaching are reflected in the works of J. Scrivener [20] and P. Ur [21]. It should be immediately noted that the communicative approach does not offer specific or professionally oriented methods for teaching a foreign language and is geared towards General English. However, its principles of working with texts should also be considered during the analysis of procedural characteristics common to various approaches. The pretext stage includes the following components: lead-in; elicitation; predicting and guessing activities; the presentation of pre-teaching vocabulary (5-7 lexical units). The main work with texts is divided into several stages: reading for gist, skim reading; scanning, reading for specific information. Tasks offered at this stage can vary starting from giving answers to

questions and ending with filling in the gaps, working with numbers, putting text theses in order, etc. The next stage is the presentation of language elements (both grammatical and lexical) as exemplified by a certain text, with the subsequent tasks for consolidating the material presented. Finally, the work with texts ends with exercises aimed at the development of oral skills. Pair and group forms of work prevail at this stage. Finally, let us turn to the procedural characteristics of CLIL. Since this approach is still developing in Russia, we cannot rely on Russian experience yet. Therefore, we should analyze foreign scientific works. For instance, P. Mehisto [22] enlists the following elements of CLIL-lessons:

- Vocal warm-up;
- Discussing educational objectives and expected learning results with students;
- Determining students' existing knowledge on the chosen topic, arranging this knowledge and setting lesson tasks;
- Scanning reading of a text abstract performed by each student individually;
- The pair or group comparison of the results, as well as joint work on the processing of the information received and its presentation in the form of a plan, a list of recommendations, etc.;
- Discussing two or three issues within a group to improve critical thinking, the ability to adequately evaluate one's work and desire to refine it;
- Presenting the results of one team, feedback, comments from others, the adoption of the final result of the whole group;
- Discussing the achieved objectives and performed tasks set at the beginning of the lesson, considering further steps.

D. Coyle wrote that any CLIL-lesson should comply with 4C principles – content, cognition, communication and culture [23]. It is no coincidence that "content" is placed in the foreground due to the rules of abbreviation (C stands for content) and basic principles. At the first stage, it is necessary to work with content, i.e. to select an authentic text corresponding to the subject matter and student's proficiency in a foreign language. At the same time, the chosen text should leave some room for the "discovery" of new knowledge in terms of language and subject matter. The problems of selecting and pedagogically adapting materials for integrated education are very acute and deserve a separate study. In addition to the selection of textual materials, the first stage includes vocal warm-up aimed at activating the existing background knowledge and engaging students into the process of learning information in a foreign language. During the stage of collective goal setting, the teacher should focus not only on the specific knowledge gained by students in a particular lesson but also consider the issue from the viewpoint of developing higher-order thinking skills.

The next stage involves the full-fledged work with the text and the simultaneous development of thinking skills, i.e. it complies with two principles at once – content and cognition. Speaking about thinking skills, we cannot but mention B. Bloom's taxonomy [24].

This hierarchical system includes six mental functions divided into two groups: lower-order thinking skills (LOTS) – knowledge, understanding, use and higher-order thinking skills (HOTS) – analysis, synthesis, evaluation. The taxonomy revised by D. Krathwohl acquired the form of a pyramid: memorization, understanding, application, analysis, evaluation and creation [25].

Thus, the work with texts should start with lower-order thinking skills and tasks like make a list, determine and define some features, use or exemplify, and proceed to exercises that form higher-order thinking skills: analyze, compare, find differences, come up with some ideas, develop a plan, prove, predict, etc. Specific techniques can include various means of visual text organization: mental and conceptual maps, tree diagrams, flowcharts, etc. Besides B. Bloom, we should mention one more cognitive researcher of content and language integration – J. Cummins [26]. He proposed to distinguish between basic interpersonal communication skills (BICS) and cognitive academic language proficiency (CALP). According to his "iceberg" theory, higher-order thinking skills and cognitive academic language proficiency are interconnected. The scholar also assumed that the formation of CALP necessarily requires full-fledged HOTS [27]. Consequently, he proposed to organize integrated lessons based on the so-called Cummins matrix where tasks are arranged sequentially in four squares, starting from context-specific and easy-to-complete tasks from the cognitive perspective and gradually moving towards abstract context-isolated tasks with a higher degree of cognitive load. At this stage, the main goal is to give students an opportunity to independently create their own system of knowledge.

The third stage represents the communicative component of any given lesson. At this stage, the teacher draws the attention of students to the linguistic component of CLIL. After working with content, students should study lexical and grammatical features of this text material, as well as use these language units and structures in real communication conducted in a foreign language. In this case, it is worth mentioning three languages of CLIL: the language of learning, language for learning and language through learning [28]. The language of learning is a set of language means necessary for studying a specific subject area. The language for learning is communication tools that students use to communicate with each other while performing group tasks. The language through learning is new language tools whose possible use the teacher cannot plan in advance but which must be noticed, studied, periodically repeated and become part of the learner's vocabulary.

During the fourth stage, the cultural component of integrated learning is implemented. According to K. Bentley, "culture is the core of CLIL" [29]. In one of his earlier works, D. Coyle also noted the importance of intercultural interaction between students and the creation of various sociocultural contexts during the lesson [30]. Culture influences the way we see and perceive the surrounding world and makes us regard language as a means of expressing this vision [31], [32]. The increasing importance of intercultural competences among future graduates of non-linguistic universities was mentioned in the introduction to this article. Here we would like to highlight that accepting differences of various cultures

students think about the unambiguity of this or that information obtained from the text and consider it from different viewpoints, thereby forming their own understanding of the phenomenon or situation in question. The ability to identify linguistic and cultural characteristics of textual materials, skills to quickly switch between native and foreign cultural traditions, knowledge about the culture of other countries are the foundation of successful integrated learning. In practical terms, this can be linguistic tasks to find differences in the vocabulary of foreign language variations, to watch a video and reveal the specific representation of concepts, ideas and theories in a different culture.

#### IV. RESULT ANALYSIS

Let us consider how the peculiar implementation of CLIL can influence specific content. Based on the analyzed procedural characteristics of ESP, CLT and CLIL, we developed a plan of lessons for first-year undergraduate students enrolled in the "Landscape Architecture" course and studying a foreign language as a compulsory discipline and landscape science that is generalized and consists of several themed modules.

To maintain the experimental integrity, we chose the same lesson topic – "Plant parts and their functions". The source text was initially the same and was taken from the official website of the Missouri Botanical Garden (<http://www.mbgnet.net>) due to the requirements of authenticity. Below we present procedural characteristics for each of the selected approaches to describe all the stages of preparing and conducting lessons (Tables 1, 2 and 3).

**Table 1. Procedural characteristics of ESP on the topic "Plant parts"**

<p>Pretext stage: Formation of lexical and grammatical skills to avoid any difficulties in the process of working with texts.</p>	<p>Working on vocabulary – familiar vocabulary: water, nutrients, soil, plant, sunlight – students read words aloud, practice pronunciation, combine words in different utterances and phrases; – presumably familiar vocabulary: root, leaf, stem, flower, fruit, seed – students read words aloud, practice pronunciation, translate words, combine them in different utterances and phrases; – new vocabulary: absorption, root hairs, herbaceous, woody, reproductive, pollen, ovules, pollination, fertilization – students read words aloud, practice pronunciation, translate words, complete tasks with these words, combine them in different utterances and phrases. Grammar Repeat Present Simple.</p>
<p>Text stage: Deep understanding of any given text, translation skills, annotation, summarization.</p>	<p>The source text should be shortened and its grammar simplified to the use of a single tense. The work with the text comprises reading in English, translation into Russian, summary in Russian and English.</p>
<p>Post-text stage: Prepared monologue in English.</p>	<p>Preparing an oral report on the topic "What do plant parts do?" with the key vocabulary and text material.</p>

**Table 2. Procedural characteristics of CLT on the topic "Plant parts"**

<p>Pretext stage: Topic introduction, the determination of background knowledge, the presentation of unfamiliar vocabulary.</p>	<p>Topic introduction: the demonstration of plant images, the determination of students' background knowledge of the English nominations of the main plant parts, assumptions about their functions. The presentation of this information on a board as a diagram with "blank spots". The presentation of new words: absorption, pollen, ovules, reproductive.</p>
<p>Text stage: Revision reading; Reading to extract specific information.</p>	<p>The source text is shortened and partially adopted. Revision reading: the student's task is to fill in the "blank spots" of the diagram with the English nominations of plant parts. Reading for specific information: question/answer tasks, true/false tasks.</p>
<p>Post-text stage: Presentation of the target vocabulary based on the text material.</p>	<p>The presentation of new words: root hairs, woody, herbaceous, pollination, fertilization; the performance of "matching" and "fill in the gaps" tasks.</p>
<p>Verbalization.</p>	<p>Work in pairs: the definition of new words and guessing of their meanings. Discussion: What plant part is the most important and why?</p>

**Table 3. Procedural characteristics of CLIL on the topic "Plant parts"**

<p>Preparatory stage: Selection of material according to certain content.</p>	<p>The selection of an authentic text suitable for a certain professional discipline and level of language proficiency, which still leaves enough room for growth in the zone of proximal development. The definition of 4C components (Table 4).</p>
<p>Pretext stage: Warm-up: determining background knowledge on a particular discipline. Goal setting: defining the objectives and tasks of any given lesson.</p>	<p>Topic introduction: brainstorming aimed at determining students' knowledge of the English nominations of the main plant parts and their functions. The presentation of the identified information on a board in the form of a diagram. Determining the objectives and tasks of any given lesson: to learn nominations of all plant parts, to be able to talk about them and determine their functions.</p>

Text stage: Connection between content and cognition; Forming thinking skills of the low and high order; Mastering content on the topic of each lesson.	The source text is not adapted. Work with the text. LOTs: to fill in the "blank spots" on the plant image with the English nominations of plant parts; to match images of different vegetables and fruits and plant parts; to compile a conceptual map of the text. HOTs: to analyze the stages of plant development and determine the order certain parts develop and function; to follow the development of an apple tree (figure + stage description).
Post-text stage: Work with the language material; Mastering of vocabulary and grammar.	Language of learning: Terms: to match terms and their definitions. Language for learning: Present Simple: to find examples in the text, to perform the "fill in the gaps" exercise. Language through learning.
Cultural stage.	Watching a video clip on the developmental stages of plants. Determining the cultural features of the shown educational video. Discussing the speaker's linguistic features.

We should separately reflect four components (4C) crucial for working with the above-mentioned text material (Table 4).

**Table 4.** 4C Principle "Plant parts and their functions"

Content	Communication	Cognition	Culture
Intro to botany: "Plant parts and their functions".	Root, stem, leaves, flower, fruit, seed, root hairs, herbaceous, woody, reproductive, pollen, pollination, fertilization, ovule, etc. Work forms: individual, pair checking, work in pairs, work in groups of three people.	LOTs: to add captions to a certain picture, to match words and their definitions, to perform multiple-choice tasks. HOTs: to present information in the form of a sketch, to prepare a creative project.	Multiple-choice tasks comprise plants that are not typical for Russia but are part of the Western culture (sweet potato, asparagus, artichoke, etc.)

## V. CONCLUSION

The tables above demonstrate that CLIL has procedural characteristics that are completely different from the other two popular approaches. Unlike ESP and CLT where the linguistic component is the key one (work with language material, vocabulary and grammar), CLIL starts the process of learning with content. At the same time, one cannot say that the linguistic component comes second after the content-related component. The art of CLIL or teachers themselves consists of a skillful combination of content and language because it is the only way to comply with the principle of duality. Work forms common to CLIL are partially aligned with CLT since they are based on the pair and group work of students seeking to cognize the subject by extracting information presented in a foreign language. CLIL is more focused on the student's independent work, while ESP is often teacher-centered. We should also note that such a type of work as translation is omitted in the procedural description of CLIL despite the fact that some content is studied in a foreign language and is regarded only as a means of quickly explaining language units from the language of learning. The reason is the orientation on the development of four types of speech activity that do not include translation.

This comparative description combined with practical examples can provide clear guidelines for teachers who want to move from the ESP and CLT techniques to CLIL as it reveals differences in the implementation of these

approaches. Moreover, teachers who are already practicing CLIL can use this description as a tool for self-control and self-development.

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