Висновки та пропозиції. Результати дослідження показали, що можливо будувати канторові множини на основі систем чисел з непарним базисом. Відповідні конструкції можуть бути основою для практичних завдань у курсі теорії функцій та функціонального аналізу в математичних спеціальностях вищих навчальних закладів.

Аналіз змісту навчальних програм з математики для спеціалізованих класів з поглибленим вивченням математики в закладах загальної середньої освіти вказує на можливість вивчення теми «Канторові множини та системи чисел» у різних видах неформальної освіти, протягом 5-11 класів.

Ключові слова: *методичні особливості; система числення; множина; потужність множини; канторівська множина; метричний простір; фрактали; функціональний аналіз.*

Одержано редакцією 28.09.2025
Прийнято до публікації 15.10.2025

https://doi.org/10.31651/2524-2660-2025-4-42-51
https://orcid.org/0000-0002-6574-1673

VOVK Olena

Doctor of Pedagogy, Professor,
Professor of the Department of English Philology, and Methods of Teaching the English Language,
Bohdan Khmelnytsky National University in Cherkasy
e-mail: vavovk66@gmail.com

УДК 378.091.313CLIL:811.111(045)

IMPLEMENTING CLIL PRINCIPLES IN TERTIARY EDUCATION: A METHODOLOGICAL DIMENSION

Introduction. This article operationalizes a framework for implementing Content and Language Integrated Learning (CLIL) within University methodological practice, specifically for Master's-level learners in Methods of Teaching the English Language to High School and University students. It elucidates the foundational CLIL principles for Foreign Language Pedagogy, examines key CLIL tenets, including instructor mediation, scaffolding, and distinct language layers (subject-specific, general academic, and peripheral), alongside major strategies such as concept mapping. A special emphasis is placed on the incremental progression from Basic Interpersonal Communication Skills (BICS) to Cognitive Academic Language Proficiency (CALP).

The purpose of the article is to illustrate how the elucidated CLIL principles can be effectively implemented into methodological practice.

Results. Employing the methods of theoretical positioning, pedagogical observation, quantitative and qualitative research, and comparative analysis, the article illustrates how CLIL conceptual positions may be applied to methodological classrooms presuming accumulation and progression in the course of foreign language and content acquisition, knowledge discovery, and assimilation of both BICS and CALP.

Conclusion. CLIL curricula must delineate distinct language layers – subject-specific, general academic, and peripheral – each with unique characteristics and functions, necessitating differentiated pedagogical strategies. At that, recognizing the intrinsic link between cognition and language within subject domains is paramount. The progression from BICS to CALP is a protracted process, requiring adherence to a structured procedure facilitated by CLIL instructors. CLIL is underpinned by six key principles that guide teacher scaffolding and framework implementation within CLIL learning environments.

Keywords: *Content and Language Integrated Learning; Foreign Language Pedagogy; Basic Interpersonal Communication Skills; Cognitive Academic Language Proficiency; Scaffolding.*

Introduction. Content and Language Integrated Learning (CLIL) represents a pivotal pedagogical paradigm shift, particularly within the context of tertiary methodological instruction. Defined as a dual-focused educational approach, CLIL systematically integrates the acquisition of disciplinary knowledge with the simultaneous development of an additional language, thereby establishing a symbiotic relationship where the language serves as the medium for content mastery.

While the foundational principles of CLIL are widely recognized, their actualization and implementation within the specialized environment of methodological classrooms presents a distinct set of pedagogical and didactic challenges.

This study introduces the critical need to examine the concrete implementation of CLIL core tenets in settings focused on subject-specific teaching methods, professional practice, and critical curriculum design. Such methodological classrooms necessitate an intricate balance: instructors must not only facilitate the learning of content (e.g., specific research methods, teaching techniques, curricular analysis) but also intentionally cultivate the specialized academic register and communicative and cognitive competence required for students to articulate this knowledge effectively in the target language.

The goal of the article. This research is aimed at actualizing a potential framework for implementing CLIL within University methodological practice. To this end, the present article will elucidate the foundational CLIL principles pertinent to Foreign Lan-

guage (FL) Pedagogy and illustrate how they can be applied to FL methodological classrooms.

Methods. The study employed a mixed-methods research design, integrating both quantitative and qualitative approaches to comprehensively investigate the complexities of FL Pedagogy within a University curriculum. Quantitative data were gathered through standardized assessments, systematic observational scales, and viva voce recitations. Concurrently, qualitative classroom observations provided rich, contextual insights into pedagogical practices. This convergent design was selected to capture the multifaceted nature of real-life language learning environments and to facilitate a robust, triangulated understanding of the factors contributing to positive learning outcomes.

Results. CLIL is presumed to be successfully implemented into methodological practice provided its core principles are adhered to. Among these, the seminal contributions of Ph. Ball, K. Kelly, and J. Clegg (Ball, Kelly, Clegg, 2015, p. 71–101) hold significant weight. This study will contextualize these key principles within the methodological classroom environment of students seeking a master's degree.

Central to CLIL is the principle of *mediating language between the student and new concepts*, which entails the provision of content input by the instructor, incorporating embedded target language structures. Respectively, CLIL instructors are supposed to: (1) anticipate potential language issues; (2) possess the pedagogical agility to address these issues effectively; (3) provide scaffolding to ensure high-quality student outcomes (*Campbell* et al., 1985, p. 45–46).

In their turn, students are expected to: (a) analyze the studied issues from multiple perspectives, formulating conclusions and inferences; (b) identify causal relationships and provide rationale for observed phenomena; (c) synthesize and interpret the results of pedagogical observations or experiments (Armstrong, 2003, p. 15).

That given, the teacher has to mediate between the students and the target content, employing diverse contextualization strategies like presenting linguistic material through visual aids such as graphical organizers, accompanied with relevant exemplification. Clearly, specific terminology is to be integrated within these examples to illustrate targeted linguistic patterns alongside logical connectives, which may pose challenges for students. The instances of such connectives are illustrated below (Vovk, 2020a, p. 94–98):

Table 1

Examples of Logical Connectives

in the event that	hitherto	correspondingly
granted (that)	therefore	eventually
given that	furthermore	subsequently
with this in view	in the light of	consequently
to this end	henceforth	respectively
with this in mind	in line with	to the effect that
in the similar vein	inasmuch as	nonetheless
in order to	that aside	regardless of
in view of	in terms of	notwithstanding
given these points	with regard to	conversely

The next principle – *cultivating subject language awareness* – necessitates that CLIL instructors have a comprehensive understanding of the disciplinary language, demonstrate proficiency in its application, and foster a corresponding awareness among students. With this in mind, three distinct layers of language within classroom methodological discourse are delineated (Ball, Kelly, Clegg, 2015, p. 71–101): (1) subject-specific language, intrinsically linked to the discipline; (2) cross-curricular language, encompassing general academic discourse; (3) interactional language, facilitating classroom communication, often designated as peripheral language.

Layer 1. *Subject-specific language* constitutes content-essential language (Snow, Met, Genesee, 1989, p. 207), which instructors have to address. It is characterized by its lower frequency relative to general-purpose language and its high contextual dependence. Instructors have to make subject-specific vocabulary prominent through techniques such as typographical emphasis (e.g., italics, boldface) or marginal glosses. Besides, instructors may employ pedagogical strategies to facilitate students' identification of key terminology like mnemonic devices and concept mapping tools enabling students to organize and retain vocabulary through structured visual representations. Concept mapping tools encompass a variety of typologies involving specifications.

A mind map is a visual representation of interconnected concepts, terms, or items, organized around a central node. This non-linear graphical layout facilitates the construction of a personalized conceptual framework promoting the visualization, retention, and recall of information. Mind maps may take diverse forms. For instance, a mind map follows (fig. 1) represents the *Communicative and Cognitive Approach to Teaching a Foreign Language*, employing *a branching diagram* structure:

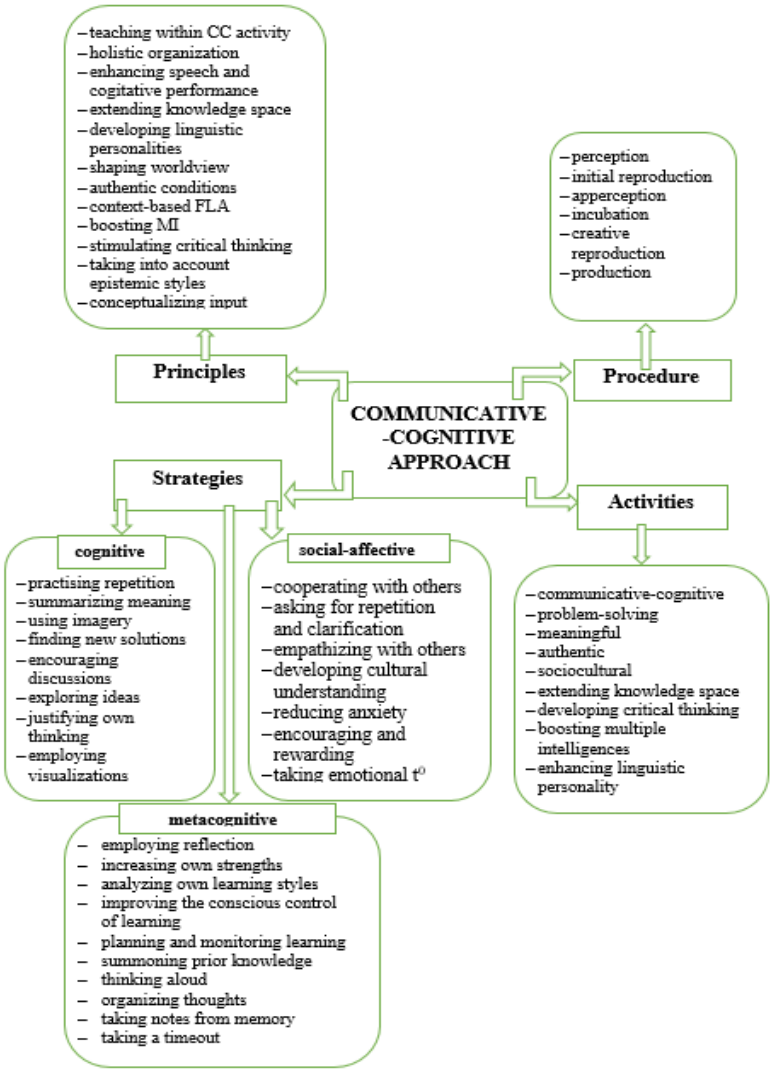


Fig. 1. Branching diagram of the Communicative and Cognitive Approach

The next mind map has the form of *a cluster gapped model* (fig. 2), which students are expected to fill in with the notions they are getting familiarized with:

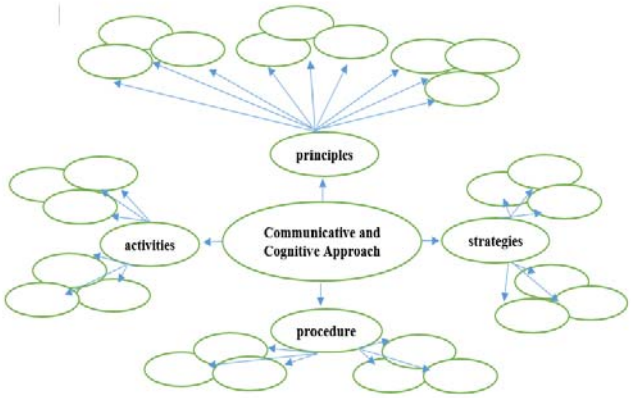


Fig. 2. Cluster gapped model of Communicative and Cognitive Approach

Within the broader category of mapping the most prominent is *a concept map* – a graphical representation delineating the proposed relationships between concepts. It represents ideas and information as nodes (e.g., boxes or circles) interconnected by labeled arrows, commonly arranged in a hierarchical, downward-branching structure. The relationship between concepts can be articulated in linking phrases such as *causes, requires, implies, is made up of, contributes to, are characterized by,* etc. The succeeding example instantiates the aforementioned (fig. 3):

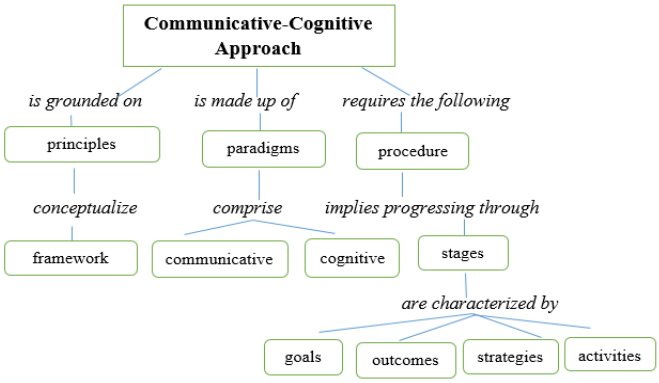


Fig. 3. Concept map of the Communicative and Cognitive Approach

Educationalists distinguish between *two primary types of maps*: (1) *generic concept*

maps, encompassing key concepts and associated language (constructed by the teacher); (2) *learner-generated maps* (produced by students). The integration of concept maps within the pedagogical process may appear beneficial for content and language acquisition. The benefits comprise: (a) presentation of a generic structure of key concepts; (b) consolidation of essential terminology into a readily accessible resource (Ball, Kelly, Clegg, 2015, p. 70–73).

Besides, generic maps can be employed for organizing and sequencing unit-specific vocabulary. A strong technique may involve presenting students with *a gapped map*, which they have to complete as they progress through the unit. This process facilitates the reconstruction of the unit's overall conceptual framework. The following gapped map exemplifies this idea (fig. 4).

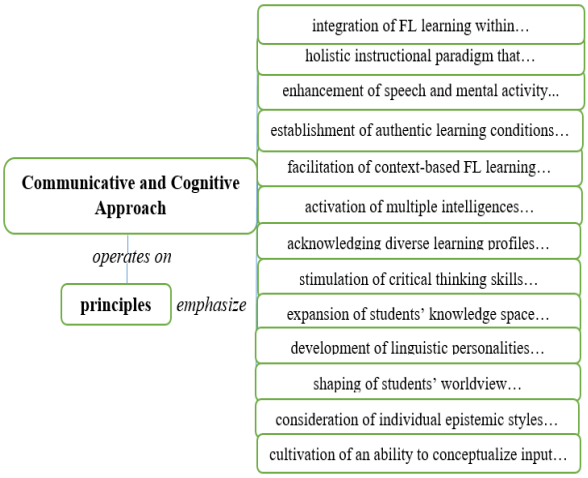


Fig. 4. Gapped map of Communicative and Cognitive Approach principles

Layer 2. *General academic language* that is not specific to any one subject. Unlike subject-specific language, it is not conspicuous at large, necessitating explicit pedagogical attention to ensure student assimilation and application.

Subject-specific language and general academic language constitute the Cognitive Academic Language Proficiency (CALP) of the curriculum. CALP refers to the language necessary for comprehending and discussing academic content within the classroom. In addition to acquiring the language, students need to develop such CALP skills as *comparing, classifying, synthesizing, evaluating, and inferring* when developing academic, methodological, and communicative-cognitive competence. General academic language is intrinsically linked to cognitive processes within subject domains. That is why, instructors are required to identify the linguistic functions associated with these cognitive processes and familiarize students with their usage. Tabular chart 2 illustrates the phrases of academic language with the functions of inference and uncertainty.

Table 2

CLIL Classrooms Language

Methodological Language	
General vocabulary for methodological issues	*English language acquisition/learning, target language, approach, method, techniques, strategies, principles, procedure, model, stages, activities, drilling exercises, habits, skills, abilities, proficiency, competence, awareness, knowledge, assimilate, internalize, elaborate, practise, develop, enhance, foster, boost, shape, prioritize, sounds, intonation, grammar, lexis, speech patterns, lesson design, learning outcomes, global goals, teaching aims, learning environment, exposure to language, reading, listening, writing, speaking, assessment, reflection, planning, curriculum, syllabus… .*
Generic vocabulary for *Communicative and Cognitive Approach*	*communicative and cognitive paradigm, principles, conceptual framework, communicative and cognitive activity, basic skills, speech production and cognitive processing, holistic instruction, heuristic teaching, context-based teaching, critical thinking, authentic conditions, shaping worldview, acculturation model, diverse learning profiles, linguistic personality, multiple intelligences, learning styles, epistemic styles, knowledge space, ability to conceptualize input, communicative and cognitive competence, levels of processing information, learning pyramid, stages of learning, brain processes, model of developing communicative and cognitive competence, perception, initial reproduction, apperception, incubation, creative reproduction, production, processing learning material, system of activities, spiral way of cognition, effective interaction … .*
The language of inference and uncertainty	***verbs:*** *assert, argue, elucidate, infer, elicit, identify, maintain, conclude…* ***modal verbs:*** *might, may, could, would, have to …* ***adverbs of probability****: perhaps, possibly, likely, increasingly, apparently, feasibly, presumably, sporadically, seemingly, hypothetically …* ***qualifiers****: to a point, in some measure, somewhat, to some extent, to some degree, insignificantly, moderately, seldom if ever, hardly, incrementally…* ***tentative statements:*** *tends to…, appears to…, deems to…, seems to…* ***academic wording:*** *a few studies…, voluminous research… indicates that…, given the lack of critical attention paid to…, there is evidence that … has a positive effect on, these arguments suggest…, granted that…, the problem is addressed from the perspective of…*

Ball, Kelly and Clegg (2015, p. 81) emphasize the significance of students' ability to group and classify diverse phenomena as well as compare them. This proficiency is crucial for both CLIL instructors and students, hence the former have to provide the instances of structures and phrases, which exemplify the function of the targeted language features.

The subsequent chart illustrates the language corresponding to cross-curricular cognitive skills in terms of "teacher questions" and "learner statements". Its purpose is to render general academic language explicit for students, thereby enabling them to adequately employ it when articulating methodological concepts (table 3).

Table 3

Language in Question in CLIL Classrooms

Teacher questions	**Student statements**
What paradigms is the CCA made up of?	The CCA is made up of… which comprise…
What principles is the CCA grounded on?	The CCA is grounded on… They conceptualize…
What procedure does the CCA require? What goals and learning incomes does each stage of the procedure have?	The CCA requires … which implies progressing through… Each stage has…
What strategies is the CCA characterized by?	The CCA is characterized by…
Into what types are the activities of the CCA divided?	The activities of the CCA are divided into…

It is fair to acknowledge that not all curriculum documents explicitly articulate the cognitive skills required within a specific subject. Consequently, CLIL curriculum develop-

ers are expected to operate under the premise that all cognitive skills, by virtue of their inextricable link to language, must be explicitly defined and specified within the curriculum. These skills are typically categorized into three domains (table 4).

Table 4

Categorization of Skills
in CLIL Methodological Classrooms

Scientific Skills	Thinking Skills	Creative Thinking Skills
science process skills	analyzing	synthetizing
observing	planning	generating ideas
categorizing	making decisions	predicting
diagrammatizing	asking questions	making generalizations
inferring	critical thinking skills	visualizing
predicting	comparing and	making hypotheses
communicating	contrasting	making analogies
using space-time relationships	classifying	inventing
interpreting data	sequencing	creating information
defining	prioritizing	brainstorming
hypothesizing	evaluating	converging
experimenting	making conclusions	diverging

The aforementioned skills chart provides a synopsis of the cognitive and investigative skills to be expected of University students, irrespective of their disciplinary focus. These skills encompass both process and manipulative skills. Within the context of methodological practice, *process skills* may involve (Ball, Kelly, Clegg, 2015 p. 78):

(1) observation (utilizing sensory modalities, such as auditory and visual perception, to gather information about phenomena);

(2) classification (categorizing phenomena on predefined criteria). *Practical skills* are those that students acquire through workshops or internships.

As previously established, subject-specific and general academic language constitute the CALP of the curriculum. This implies that beyond linguistic acquisition, students must cultivate CALP-related skills, including *comparing, classifying, synthesizing, evaluating, and inferring*, to progressively attain academic competence.

Layer 3. *Peripheral language* predominantly corresponding to the organizational language employed within the classroom. It refers to the language that teachers use for providing instructions and coordinating student activities. Peripheral language corresponds to Basic Interpersonal Communication Skills (BICS), which presume linguistic proficiency in everyday interactions. The language used in these interactions can be either context-embedded or context-reduced.

Context-embedded language refers to communication occurring within a shared context, where students have access to supplementary cues that facilitate meaning construction (e.g., visual aids, expressions, activities with props, illustrations, etc.). Conversely, *context-reduced language* refers to communication such as lecture comprehension or dense text analysis, where linguistic signals are the primary source of meaning. Such tasks typically involve abstract and academic language (Cummins, 2000, p. 126; Cummins, 2009, p. 72). The chart that follows (table 5), which is a modification of *the Cummins quadrant*, illustrates cognitively demanding (CALP) and cognitively undemanding (BICS) tasks within context-embedded and context-reduced environments for University students specializing in FL Pedagogy:

Table 5

Student Support Schema
in CLIL Classrooms

STUDENT SUPPORT SCHEMA			
Cognitively Undemanding Tasks (BICS)			
– understanding and using language employed in a non-academic context with high frequency vocabulary, simple in structure, and easy to understand – participating in social and informal interpersonal interaction – having face-to-face peer conversation – completing daily routines			– understanding and using unspecialized language with more generic vocabulary and varied in structure – using class-room expressions – conducting one-to-one tutoring with a student – having one-to-one discussion with a teacher
CONTEXT EMBEDDED	**A**	**B**	**CONTEXT REDUCED**
	C	**D**	
– understanding and using abstract language (including stylistic devices, colloquial expressions, phraseological units and idioms) – having interactional fluency – participating in oral discussions – listening – reading – writing			– understanding and using academic language and scientific terminology – having scholarly interactional fluency – defining concepts – perceiving lectures and taking notes – reading and understanding content – completing tests – making observations – conducting scholarly experiments
Cognitively Demanding Tasks (CALP)			

It is evident that the tasks located within the D quadrant, characterized by both cognitive demand and context reduction, may prove most challenging for students. However, it is crucial that students acquire the linguistic and communicative potential to complete such tasks, as academic and methodological success is contingent upon it (Language Acquisition).

Noteworthy that organizational, peripheral, or conversational language may overlap with general academic language, particularly when instructors combine content and specific activities. Peripheral language also encompasses the “regular conversation” of the classroom, referring to the interactional discourse between the instructor and students and between students themselves. While the monitoring of this language is feasible, like subject-specific and general academic language, the instructor discourse itself constitutes a component of peripheral classroom language. Table 6 exemplifies potential scripted classroom language (Vovk 2020b, p. 77–91).

Table 6

Teacher Language in English CLIL Classrooms

Teacher Language		
Getting students' attention	**Requesting students to respond**	**Encouraging students**
Attention, please. *Can I have your attention?* *Let me have your attention.* *Listen to me carefully, will you?* *Don't get distracted, please.* *Don't digress.* *I need your full attention.* *Have a look at the chart.* *Focus on the presented material, please.* *Concentration, please!* *No digressing, please!* *Stick to the point, please!* *The issue we are going to discuss today is very important.* *Take your time!* *If anything is not clear feel free to ask clarification questions. …*	*Can you reply to my question?* *Don't answer at random. First think, then speak.* *Who can contribute to what has been said?* *Who can extend the answer?* *Try to give a fuller and clearer answer to my question.* *Listen to a clarification question and speak in plainer English.* *Try to guess.* *Can you rephrase it?* *Can you offer a better explanation?* *Who can a provide a better interpretation?* *Any volunteers to answer? …*	*Well done! Good job!* *You are getting better all the time.* *You are progressing fast.* *I'm extremely pleased with your performance today.* *I think you can do it without outside help.* *You are pretty knowledgeable on this issue.* *You are making good progress in English.* *I see you are in command of the material.* *You are very well-prepared.* *You have become very sophisticated in methodological issues.* *You are quite competent in this matter. …*

The following principle presumes *planning with language in mind.* It implies that CLIL instructors are expected to prioritize linguistic considerations while planning and devising classroom activities. This allows for the anticipation of potential linguistic challenges that students may encounter within a specific unit. Consequently, instructors can delineate the linguistic elements embedded within *content input* and those anticipated in *content output.* The interrelated charts beneath illustrate a sequence of activities, in terms of *content and planning*, and demonstrate language planning within a CLIL lesson framework (modified from (Ball, Kelly, Clegg, 2015, p. 83) (fig. 5).

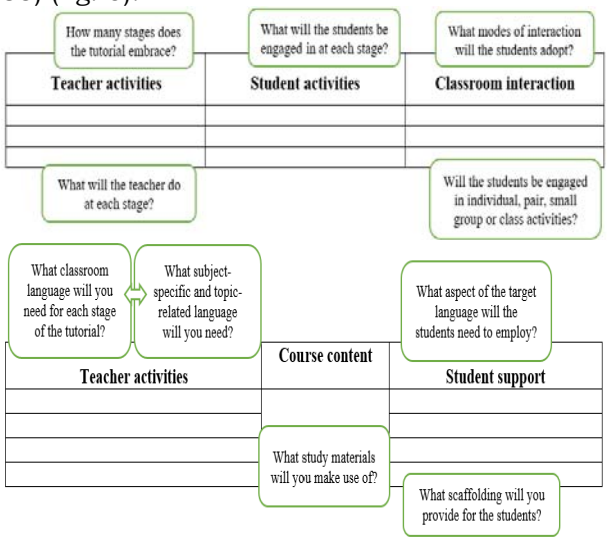


Fig. 5. Language planning for a CLIL lesson

The abstract that follows exemplifies methodological study input, which embraces linear text with italicized headings for student processing (Vovk, 2017, p. 83).

The Model of Communicative and Cognitive Approach

…The integration of J. Piaget's levels of intellectual development with generally accepted in Pedagogy stages of foreign language (FL) education has resulted in elaborating a communicative and cognitive framework for FL acquisition. This framework not only encompasses the aforementioned levels, stages and processes but also expands upon them by identifying ancillary stages that enhance comprehension of perceived input and facilitate its subsequent processing and assimilation, enclasping adaptation, modification, interpretation, and ultimately, production of new communicative output.

Stage 1

In stage one (perception of new input), students are introduced to the context of communication through a foundational text, perceived through combined visual and auditory sensory channels. Complementary kinesthetic and logical channels are also engaged in this process. Hence, multisensory perception is conducive to creating holistic mental images, or percepts, of the new subject matter. Furthermore, in this stage, the development of FL speech habits commences within students' endophasia, which is crucial for the subsequent imbibing and internalization of the input.

Stage 2

In stage two (initial reproduction of new input), students reproduce segmental speech patterns from the foundational text on the superficial level in multiple grammatical, lexical, and phonetical exercises within invariant single-type situations. These activities are aimed at ensuring the development of students' speech habits alongside flexibility and muscular dexterity of their speech apparatus.

Stage 3

The first two stages culminate in stage 3 (apperception of new input), wherein students conduct a multifaceted analysis of the perceived material (identifying the thesis, structure and key parts of the foundational text, the interrelation of the text key parts with the thesis, the issues addressed by the author, used stylistic devices, etc.), construct on its basis conceptual models, thereby actualizing the schemata of students' mental spaces and inferring new knowledge. This stage may result in the intellectual construction of a knowledge space by students. From a cognitive perspective, they master cognitive processes that mediate between stimulus (perceived input) and response (speech re/production). Due to this, stage 3 fosters the development of students' cognitive habits, which along with speech habits lay the foundation for their communicative and cognitive competence.

Stage 4

The proposed model of advancing students' communicative and cognitive competence in-

corporates a transitional stage of learning – incubation of acquired knowledge – facilitating the conversion of external knowledge units into internal images or the transformation of explicit information into implicit knowledge. Therefore, this stage promotes further processing of the subject matter and consequently, enhances mental and communicative performance of students.

Stage 5

In the course of FL acquisition, an essential role is allotted to stage five (creative speech reproduction of new input). In this stage, students creatively reproduce speech patterns from the foundational text at the superphrasal or mini text level within variant situational contexts. By this time, speech and cognitive habits have presumably completed their development undergoing automation and refinement, while communicative skills are being promoted. Students' logical thinking unifies with intuition giving rise to insight or heuristic cognition as the highest level of intellection.

Stage 6

It the final stage (independent speech production), students utilize the assimilated and internalized material in individual meaningful speech output. This stage is similarly creative; students base their communicative outcomes of the text level on diverse communicative settings. Accordingly, a broader spectrum of settings promotes enhanced communicative and cognitive reconstruction of perceived information…

The instantiated rubricated piece of methodological text illustrates content with embedded generic and CALP language that may serve as anticipated student output. Students employ content vocabulary and CALP phrases from the text to be used in their own content discussions.

Subsequent table 7 demonstrates a typical curriculum descriptor for the subject area. What is missing from this descriptor but is pivotal for CLIL is specifications regarding the course of action and language. Therefore, CLIL curricula have to be designed with language in mind to make more explicit to the instructor what language is required and what strategies to utilize to actualize this language during instruction.

Table 7

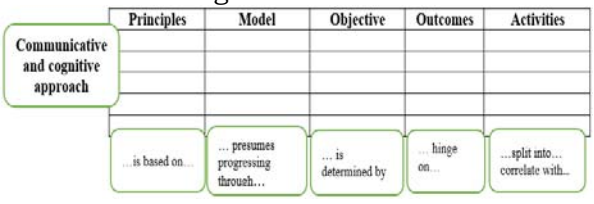
Typical Curriculum Descriptor

Year of study	**Discipline**	**Theme**	**Content concepts**	**Skills**
University students, Master's level, 1st year	Methods of teaching the English Language to University students	Communicative and cognitive approach to teaching foreign languages (CCA)	Approach, paradigm, principles, theoretical provisions, framework, model, activities	Defining, synthesizing, analyzing, comparing, making conclusions, planning, assessing, designing
Students will: – be aware of the main paradigms comprised the CCA; – be able to define major concepts of CCA; – be ready to discuss theoretical provisions and principles of CCA; – predict possible learning outcomes in each stage of the model of CCA; – reveal the strategies and activities of CCA.				

So, in order to reconstruct this missing link, the procedural decision may involve *creating a read-and-sort activity* to engage students in discussing the content of the text in pairs or small groups. This strategy would enable students to share their own individual interpretations and comprehension of the theme through initial 'private talk'. To realize this opportunity, the instructor has to identify a generic structure within the text to construct a diagram of the context *incorporating embedded language,* which students could utilize in order *to process the content input* (Ball, Kelly, Clegg, 2015, p. 89). For instance (table 8):

Table 8

Content Diagram in CLIL Classrooms



The aim of the illustrated diagram with the embedded language is to scaffold the students in constructing the output content, by exposing the diagram, and requesting them to feed back on what they have assimilated concerning the theme under study *(The Communicative and Cognitive Approach).*

The next principle – *carrying out a curriculum language audit* – presumes that while curriculum documents provide instructors with contextual guidance regarding class content, the degree of instructional explicitness may vary across the levels of study. When it comes to CLIL, there is a requisite for redeveloping the focal aspects of curriculum documentation in three basic CLIL dimensions: concepts – language – procedures (Ball, Kelly, Clegg, 2015, p. 101) as illustrated in table 9:

Table 9

CLIL Curriculum Features

CLIL Curriculum Features in Three Dimensions		
Content Concepts	**Scaffolding Phrases**	**Course of Action**
– approach – paradigm – principles – framework – model – goals – learning outcomes – activities – strategies – input – output – conceptualization – competence	… is based on … … conceptualize … … presumes incremental progressing through … … requires gradual following … … are familiarized with and introduced to … … is characterized by … … are determined by … … hinge on … … split into … … are in correlation with … … incorporate … … give rise to … … promote / advance / enhance… … ensure a high level of … … are developed …	– follow a lecture – note its keys ideas – peruse the text about the model of CCA – characterize its stages – specify the goals and possible learning outcomes of each stage – analyze the activities with aligned strategies

Furthermore, it is argued that 'language' has to be also incorporated in curriculum documentation to assist instructors. Respectively, curricula have to be redesigned to provide instructors with: (1) detailed language specifications for each content unit; 2) explicit language objectives for students working on this particular unit (smyth 2003, p. 90).

Implementing the principle *making general academic language explicit* scholars suggest a five-step approach to actualizing general academic language (Ball, Kelly, Clegg, 2015, p. 93):

1) content text identification (written, spoken, or audio-visual);

2) key concept delineation underscoring the key 'concepts' revolving around a theme;

3) general academic language distinction pinpointing common phrases and considering exposed cognitive skill (table 10 (Vovk, 2020a, p. 111):

Table 10

Illustration of Cognitive Skills
in CLIL Classrooms

Defining	**Specifying/Explaining**	**Exemplifying**
allows for …	in particular	comprise
highlights the …	particularly	incorporate
helps to distinguish …	specifically	encompass
takes into account …	namely	such as / like
poses a problem for …	I mean	as an illustration
will continue to evolve	to put it another way	to illustrate
can vary depending on …	in other words	for instance
was agreed upon after …	that is (to say)	to name just a few
has been broadened to include …	especially	to demonstrate
the definition of … has evolved.	explicitly	to emphasize
there are multiple definitions of ...	with attention to	to clarify
the term … embodies a multitude of	to put it differently	to enumerate
concepts which …	may cause	a well-known / notable example
this term has two overlapping, even	can lead to …	of is…
slightly confusing meanings	can result in …	this is evident in the case of …
widely varying definitions of … have	caused by …	this is certainly true in the case
emerged	result from …	of …
… is used to characterize	stem from …	the evidence of x can be clearly
to delineate	owing to …	seen in the case of …
to designate	because of …	in a similar case as identified
to establish	as a result of …	by …
to ascertain	as a consequence of …	… is a good illustration of …
to elucidate	therefore	… illustrates this point clearly.
to denote	consequently	this can be instantiated by …
to expound	hence	it can be symbolized …

4) lesson procedure establishment identifying the 'procedure' of the lesson (steps 1 to 3 govern the procedure); 5) integration of general academic language into activities embedding general academic language within pedagogical activities, such as:

1. *Provide definitions for the following concepts: approach, method, technique, procedure, model, activity, strategy, habit, skill, communicative and cognitive competence, speech and mental performance.*

2. *Identify the stages of the CCA model delineating corresponding goals and possible learning outcomes.*

3. *Specify and instantiate the tasks associated with CCA activities.*

4. *Exemplify the strategies of the CCA.*

5. *Create initial discourse opportunities.*

Instructors are expected to foster convergence between students' interlanguage and the academic language utilized in the classroom. Furthermore, students engaging with new content require opportunities to demonstrate foundational comprehension before achieving deeper understanding. Therefore, providing scaffolding and tools to support their gradual expansion of content knowledge is essential. As W.-M. Roth posits, "Practical actions provide the conditions for the emergence and evolution of the language simultaneously with the emergence of the perceived patterns in the material world" (Roth, 2005, p. 80).

The primary objective of these 'practical actions' is to establish initial discourse opportunities for reflection and articulation. This is where the interplay between BICS and CALP becomes crucial (Cummins, 2000, p. 211): 'talking themselves into understanding' may allow students to progress from using their 'own' interlanguage to the 'standard' language of the discipline, creating abiding opportunities for BICS, but supporting increasing demands for CALP.

The final principle – *sequencing activities from 'private' to 'public' discourse* – underscores the pedagogical significance of prioritizing oral discourse over written production, particularly in the initial stages of learning (Roth, 2005, p. 221; Gibbons, 2002, p. 111). This strategy is a foundational way of enabling students to progress incrementally, to propel an understanding of the content 'in their own words' before trying to utilize the 'standard' language of instruction and scholarship. Moreover, in the initial stage, there is a necessity for what is known as 'exploratory talk', which may provide students with opportunities to 'explore' the content and 'talk themselves to understanding' (Barnes, 2008, p. 7). This process entails: (1) initial group discussion allowing students to share understanding with each other in their own individual wording; (2) plenary instructor discourse enabling them to model the 'standard language' of the discipline, simultaneously engaging with students' self-articulated contributions (Gibbons, 2002, p. 113).

This sequential routine may empower students to assimilate standardized linguistic models from the instructor and/or peers. Eventually, students will be able to produce written content outputs grounded on their initial talk, using standardized subject-specific language. This progression provides students with advantageous opportunities to refine their understanding through self-articulation before generating written outcomes that adhere to the 'academic standard' of the discipline (Gibbons, 2002, p. 115).

Conclusion. In summary, the effective implementation of CLIL curricula necessitates the precise delineation of distinct linguistic strata. These strata – comprising subject-specific registers, general academic discourse, and peripheral communicative elements – each manifest definite lexico-grammatical characteristics and fulfill discrete functional roles. Consequently, this linguistic heterogeneity mandates the application of differentiated pedagogical strategies tailored to each layer's specific demands.

A foundational premise of CLIL is the recognition of the intrinsic, constitutive relationship between cognitive processes and linguistic instantiation within specialized subject domains. The developmental trajectory from BICS to CALP constitutes an extended, protracted process. This incremental progression warrants strict adherence to a structured procedural protocol, which is systematically managed and scaffolded by CLIL instructors.

The entirety of the CLIL methodology is systematically underpinned by six foundational pedagogical principles. These principles serve as the governing parameters for both teacher scaffolding mechanisms and the architectural framework implementation within CLIL learning environments.

Further implications. Although this investigation is currently inconclusive, it nonetheless furnishes several substantive insights into the integration of CLIL within tertiary methodological practice. The illustrative examples proposed for operationalizing CLIL foundational pedagogical principles within specialized methodological classroom settings demonstrate congruence with established CLIL practical guidance. This alignment, in turn, strongly articulates an imperative for subsequent empirical inquiry and further scholarly exploration within this academic domain.

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ВОВК Олена

докторка педагогічних наук, професорка,
професорка катедри англійської філології та методики навчання англійської мови,
Черкаський Національний університет імені Богдана Хмельницького

ВПРОВАДЖЕННЯ ПРИНЦИПІВ *CLIL* У ВИЩІЙ ОСВІТІ: МЕТОДОЛОГІЧНИЙ ВИМІР

Анотація. *Вступ. У пропонованій науковій праці актуалізується можливість упровадження інтегрованого змісту та мови (CLIL) в університетську методологічну практику, зокрема для студентів магістерського рівня, що вивчають дисципліну «Методика викладання англійської мови студентів старших класів та університетів». Також у статті висвітлюються основні принципи CLIL для методики навчання іноземних мов, розглядаються ключові положення CLIL, включаючи посередництво викладача, надання лінгвістичних опор, та можливість опанування окремих мовних рівнів (предметно-специфічного, загальноакадемічного і периферійного).*

Пропонуються основні стратегії навчання, зокрема концептуальне мапування. Особливий акцент робиться на поступовому прогресуванні від базових навичок і вмінь міжособистісного спілкування (BICS) до когнітивно-академічного володіння іноземною мовою (CALP).

Метою статті є проілюструвати, як висвітлені принципи CLIL можна ефективно впровадити в практику ЗВО на заняттях із методики навчання іноземних мов.

Результати. Використовуючи методи теоретичного позиціонування, педагогічного спостереження, кількісного та якісного дослідження, а також порівняльного аналізу, у статті ілюструється, як концептуальні положення CLIL можуть бути застосовані до занять із курсу методики навчання іноземних мов, що передбачає акумулювання та зростання знань у процесі оволодіння іноземною мовою поряд із засвоєнням цільового предметного контенту, відкриття знань та опанування як BICS, так і CALP мови.

Висновок. Навчальні програми CLIL повинні розмежовувати окремі мовні шари – предметно-специфічний, загальноакадемічний та периферійний – кожен з унікальними характеристиками та функціями, що вимагає диференційованих педагогічних стратегій. При цьому, визнання внутрішнього зв'язку між пізнанням та мовою в межах предметних галузей є надзвичайно важливим. Перехід від BICS до CALP є тривалим процесом, що вимагає дотримання структурованої процедури, яку мають впроваджувати викладачі CLIL. CLIL базується на шести ключових принципах, які скеровують професійну підготовку викладачів та допомагають імплементувати загальну методичну структуру на заняттях у ЗВО.

Ключові слова: *інтегроване навчання змісту та мови (CLIL); методика навчання іноземних мов; базові навички і вміння міжособистісного спілкування; володіння когнітивною академічною мовою; мовні опори.*

Одержано редакцією 16.11.2025
Прийнято до публікації 29.11.2025