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Revised Bloom's Taxonomy to Analyze the Scope of CLIL Classes with Children

Taxonomía Revisada de Bloom para Analizar el Alcance de Clases AICLE con Niños

William Ricardo Ortiz-Garcia[1]
Universidad Santo Tomás, Bogotá, Colombia

Zulma Carolina Navarrete-Villarraga[2]
Gimnasio Campestre Los Laureles Bilingüe, Cajicá, Colombia

Abstract

This paper reports the results of a qualitative action research study conducted with children from a private Colombian institution. This study aimed to analyze the learners' cognitive and knowledge outcomes measured according to the revised Bloom's taxonomy once content and language integrated learning was implemented. Data were gathered through an interview with the learners' parents, observation, and video recordings. Results give evidence that learners develop different processes simultaneously, classified by the mentioned taxonomy. This taxonomy is a helpful approach for English learners since it allows them to perform cognitive and knowledge processes without following rigid systematic learning. As a conclusion, this implementation with children allowed participants to develop cognitive processes with greater emphasis in levels 3 and 4 (apply and analyze), whereas level 2 (understand) was developed as part of the process. Meanwhile, the factual and conceptual knowledge

[1] He holds a B.Ed. in Modern Languages (English and Spanish) with a specialization course in Human Rights Teaching from Universidad Pedagógica y Tecnológica de Colombia. He also holds an M.A. in Higher Education and a Ph.D. in Research and Pedagogy at UNADE. His research interests are based on EFL teaching, learning, and e-learning.
william.ortiz01@usta.edu.co
ORCID: https://orcid.org/0000-0002-7302-2054

[2] She holds a B.Ed. in English as a Foreign Language from Universidad Santo Tomás, Bogota. She has been an English educator for more than 15 years at different educational levels. Currently, she works as a primary teacher in Cajicá, Colombia. Her research interests focus on TEFL in children.
carolina.navarrete@gcloslaureles.edu.co
ORCID: https://orcid.org/0009-0005-9186-8044

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dimensions were strengthened. Finally, procedural, and metacognitive knowledge is developed through the implementation itself.

Keywords: CLIL, cognitive processes, EFL, knowledge dimensions, revised Bloom's taxonomy

Resumen

Este artículo reporta los resultados de una investigación acción cualitativa con niños en una institución privada colombiana. El objetivo fue analizar los resultados cognitivos y de conocimiento de los estudiantes medidos a través de la taxonomía revisada de Bloom después de implementar el aprendizaje integrado de contenidos y lenguas extranjeras. Los datos se recolectaron por medio de entrevistas, observación y videos. Los resultados revelaron el desarrollo de diferentes procesos simultáneamente clasificados por la mencionada taxonomía, lo cual constituye una estrategia significativa para el aprendizaje de inglés, dado que ésta permite ejecutar procesos cognitivos y de conocimiento sin seguir un aprendizaje sistemático y rígido. Como conclusión, esta implementación con niños permitió a los participantes desarrollar procesos cognitivos con mayor énfasis en los niveles 3 y 4 (aplicar y analizar), mientras que el nivel 2 (comprender) se desarrolló como parte del proceso. Mientras tanto, se fortalecieron las dimensiones de conocimiento factual y conceptual. Por último, el conocimiento procedimental y metacognitivo se desarrolla a través de la implementación misma.

Palabras clave: AICLE, dimensiones de conocimiento, inglés como lengua extranjera, procesos cognitivos, taxonomía revisada de Bloom

Introduction

This study arose after several years of experience as English language teachers at different educational levels dealing with learners' difficulties regarding English language communicative skills and intervening not only as teachers but researchers. English is a compulsory subject within the educational curriculum in most of the institutions in Colombia. The Ministry of National Education's (MEN as known in Colombia) guidelines suggest "the acquisition of conversational and reading skills in at least one foreign language" (Ley 115 de 1994, article 21, part c). Nevertheless, English language teaching (ELT) practices in Colombia have experienced changes over the last decades allowing the inclusion of local-global (glocal) methodologies in the curricula (Le Gal, 2018). Furthermore, these methodologies are used by English language teachers to help learners' performance in this target language.

English has placed itself as a very important language for personal and professional development worldwide. However, in Colombia, it has been difficult to see much progress or improvements regarding the learning of this foreign language. This situation has been recognized as a problem, because of the low results obtained in the national exams as well as in the global ranking produced by the EF Academy (English Proficiency Index - EPI), which placed Colombia in the 75th position by 2023 considered as low mastery of this language. As Dikmen (2021) stated, "The fact that English is a common language used for communication

in various fields in the world has increased the importance of examining the factors that affect the performance of EFL learners" (p. 207). Thus, this study arose from the need to integrate methodologies used in the language field, such as Content and Language Integrated Learning (CLIL), as a response to local and national concerns about English language proficiency and use to have better outcomes in English as a foreign language (EFL) teaching and learning.

After the analysis of the context, the possibilities, and the proven benefits of the CLIL approach for the learners, the authors decided to carry on this study based on their willingness to use ELT methodologies with children. Therefore, a pedagogical intervention took place from February to December of 2022 at a private institution where students took extra classes to reinforce content and language, hence the reason why CLIL was chosen for this intervention. Besides, this study was conducted with syllabi adapted for the research aims and based on four subjects, namely: literature, mathematics, sciences, and history. These subjects' contents allowed the suitable adaptation for this study. Likewise, during this intervention, the researchers collected data throughout the process at different stages. The instruments were applied at suitable time intervals to verify the data. From the above scenario, the following research question guided this study: How do CLIL classes develop children's cognitive processes and knowledge dimensions considering the revised Bloom's Taxonomy?

Theoretical Framework

This study is based on three concepts: the revised Bloom's taxonomy, CLIL, and EFL in Colombia. These concepts are presented in the following paragraphs.

Revised Bloom's Taxonomy

This concept has been applied to educational settings by teachers and educators who strive to help their learners develop high-thinking skills with "the idea to create a classification system that could be used to facilitate communication between examiners" (Sobral, 2021, p. 149). Bloom's Taxonomy provided definitions of six main categories in the cognitive domain, ordered from simple to complex and from concrete to abstract: lower-order skills that require less cognitive processing to higher-order skills that require deeper learning and a greater degree of cognitive processing. At first, the taxonomy aimed to provide a classification of educational system goals, especially to help teachers, professional specialists, and researchers discuss curricular and evaluation problems with greater precision (Bloom, 1994, as cited in Amer, 2006; Sobral, 2021). Nowadays, several learning outcomes are measured by the taxonomy in such a way that it might be used to design the scope of curricula, syllabi, or lesson plans.

In the same vein, according to Sobral (2021), several authors have revised Bloom's taxonomy, but Krathwohl (2002) published a revised classification shown below in Figure 1.

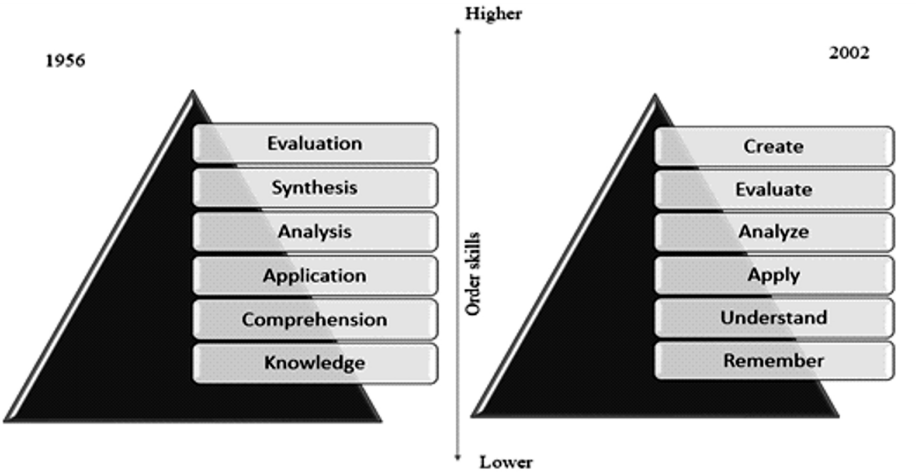

Figure 1. Original and Revised Bloom's Taxonomy Regarding the Cognitive Process

Note. Taken and adapted from *Bloom's taxonomy to improve teaching-learning in introduction to programming*, by Sobral, 2021, p. 149.

According to Krathwohl (2002), two dimensions were proposed: knowledge and cognitive processes. This author even extended their categories and their scope. One of the changes that differentiates the new model from that of 1956 is that the *evaluate* level is located under the *create* one. Due to this fact, Krathwohl highlighted the creation stage and its processes at the highest level of the pyramid, while the original stated *evaluation* as the superior one. It should be noted that the most remarkable change is that the original Bloom's taxonomy was a one-dimensional form, and the revised one takes the form of a two-dimensional table. On the one hand, it was identified as the knowledge dimension (or the kind of knowledge to be learned) and, on the other hand, the cognitive process dimension (or the process used to learn) (Forehand, 2005). This understanding is presented in Figure 2 below.

Then, the revised taxonomy shows *knowledge* dimensions. This consists of the following (Anderson et al., 2001, as cited in Wilson, 2016, p. 5):

- Factual knowledge: The basic elements students must know to be acquainted with a discipline or solve problems.

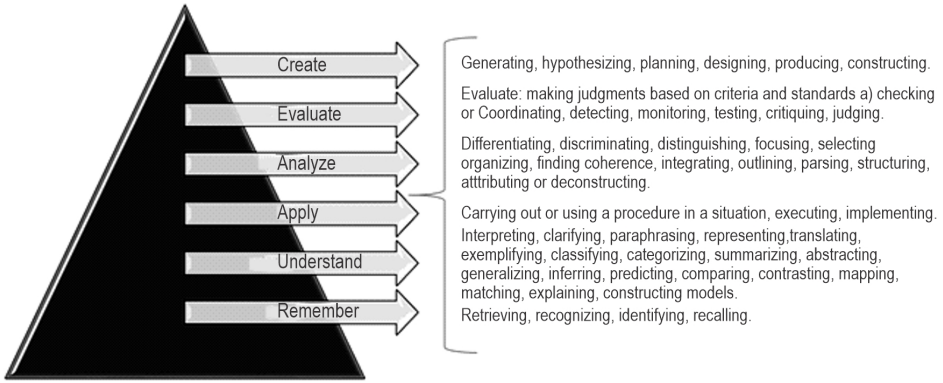

Figure 2. Revised Bloom's Taxonomy Regarding the Cognitive Process Dimension Scope

Note. Taken and adapted from *Bloom's taxonomy to improve teaching-learning in introduction to programming*, by Sobral, 2021, p. 149.

- Conceptual knowledge: The interrelationships among the basic elements within a larger structure that enable them to function together.
- Procedural knowledge: How to do something, methods of inquiry, and criteria for using skills, algorithms, techniques, and methods.
- Metacognitive knowledge: Knowledge of cognition in general, as well as awareness and knowledge of one's cognition.

In connection to the knowledge dimensions and the cognitive process (Figure 2), Krathwohl (2002) proposed a taxonomy chart shared as follows.

Table 1. Taxonomy Table

The Cognitive Processes						
The Knowledge Dimensions	**Remember**	**Understand**	**Apply**	**Analyze**	**Evaluate**	**Create**
Factual knowledge						
Conceptual knowledge						
Procedural knowledge						
Metacognitive knowledge						

Note. Taken from *A revision of Bloom's taxonomy: an overview*, by Krathwohl, 2002, p. 216.

Each concept in Table 1 is related to learners' performance. As part of this study, the researchers completed the previous table to analyze how CLIL contributes to the participants' cognitive and knowledge development. Thus, the study can be replicated in local, national, or international academic scenarios and with learners of different ages.

Content and Language Integrated Learning -CLIL

In this section, CLIL is presented as a response from teachers, educators, and researchers in the language field to apply appealing methodologies that might contribute positively to their context. The author Marsh (2002, as cited in Lasagabaster & Sierra, 2010) defined:

> CLIL is an umbrella term that refers to a dual-focused educational context in which an additional language, thus not usually the first foreign language of the learners involved, is used as a medium in the teaching and learning of non-language content. (p. 368)

CLIL was implemented in this study as part of the methodologies used to help students develop skills for a functional communicative process; then, CLIL can help them acquire more knowledge in a win-win perspective. Even though CLIL is not a new proposal in language classes, implementing it in this study represented the possibility of exposing learners to different EFL learning approaches.

A CLIL class can similarly manage naturalistic learning to that when children learn their first language (Anderson et al., 2015). However, there is a big difference between teaching a subject and being able to learn it experientially. CLIL allows children to engage with conceptual learning through experimentation in different fields of knowledge. In this study, the participants tackle content from classes such as literature, mathematics, sciences, and history; but those are not seen as regular classes, since this methodology is applied through learning activities related to "knowledge and understanding of the world, personal, social and emotional development, communication, language and literacy" (García, 2015, p. 31). In addition to this, games, dramatizations, online practice, music, art, interactive activities, and hands-on experimentation (among others) were used to carry out the classes designed for this study.

Thus, the classes, designed under CLIL principles and experimental learning, were key components the participants were developing in their mother tongue (L1) while studying content in the second language (L2) as part of the curriculum. In the academic process carried out with the participants, elements proposed by Georgiou and Pavlou (2011, as cited in Attard et al., 2016) were considered. These are displayed in the following figure consolidating a CLIL model.

In this study, the classes were designed based on the model in Figure 3 and supported through total immersion courses with a focus on fluency rather than accuracy of the foreign

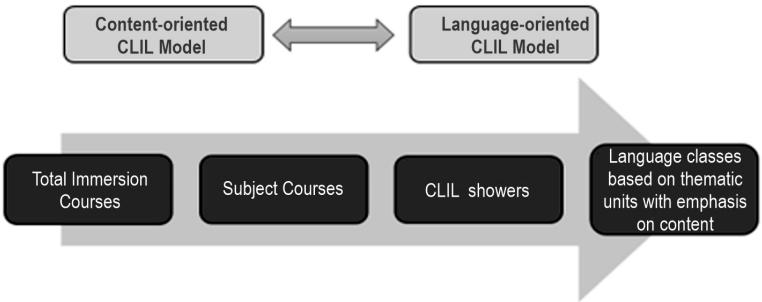

Figure 3. CLIL Model

Note. Taken and adapted from *Guía CLIL*, by Attard et al., 2016, p. 25.

language (Gučec, 2019). This focus was one of the main reasons to use CLIL. Also, CLIL works for this study properly because it goes beyond linguistic competence to impact the conceptualization (how people think), improvement of the understanding, conceptual mapping resources, and associations, for better learning (Marsh, 2020, p. 8). This way, the learning process is reinforced without compromising the development of competences and the curricular content indicators and benefits. This argument is evident in a study carried out in Colombia by Garzon (2022) through the implementation of CLIL with a visual arts class with children. The results proved that CLIL allowed the learners' cultural awareness while they were provided with aesthetic opportunities to appreciate the world, creating connections with their reality and abilities in different fields; these results are aligned with the ones obtained in this study.

English as a Foreign Language in Colombia

This section contextualizes the concept of English as a foreign language (EFL). In Yoko's terms (2011, as cited in Peng, 2019), "EFL refers to those who learn English in non-English speaking countries" (p. 33). This definition implies that the English language is learned in a non-speaking country by people whose first language is not English. According to Quimosing (2022), foreign language learning refers to non-native language learning in formal classrooms since the target language is not commonly used in the local community. It can be understood that a person whose mother tongue is different from English in the previous context, can be an EFL learner.

Having said the above, EFL is the case of Colombian people whose mother language is primordially Spanish; they hardly use English in social spaces or interactions in their communities. EFL in Colombia "has been institutionalized […] on the basis of the nation's

development and insertion into the globalized world" (Macías, 2010, p. 182). The MEN (2006, as cited in Chaves & Hernández, 2013) suggested through the National Bilingual Program (NBP) that "all citizens to communicate in English with internationally comparable standards" (p. 62). As a result, EFL has had pedagogical implications that affect the academic process, the social context, and the cultural awareness in Colombia.

EFL also allows the integration of the learner's context and the culture of the target language. Culture is undoubtedly an integral part of foreign language teaching. The world community considers language fluency as one of the greatest values of education because linguistic diversity is an essential element of cultural diversity (Kostikova et al., 2018). Besides, in the Colombian context, the future for English teachers is getting better, since they are willing to adapt different tendencies in EFL classes to improve their profession (Buendía & Macías, 2019, p. 108).

Moreover, an appealing finding regarding the EFL context is that EFL learners' self-efficacy influences their performance (Naghsh et al., 2017). According to Çelik and Karaca (2014), in South America, "English language education is typically emphasized at the secondary level, although a small number of countries include EFL instruction from the early stages" (p. 6); however, the MEN has implemented the EFL parameters in the elementary education. Based on this argument, we, as researchers, were willing to adapt CLIL in an implementation that contributed to our EFL classes, considering the Colombian policies and documents suggested for EFL in Colombia.

On the other hand, a study carried out by Bailey (2017) reports positive results, such as the fact that Colombian students are raising their awareness in terms of cultural knowledge, intercultural progress, economic interests, and good behavioral changes. EFL processes in Colombia are not unconnected to the changes in the world in this regard, but sometimes the results obtained are not shared with the research community. Therefore, this study shows the educators' and researchers' commitment to contribute to EFL in Colombia through pedagogical interventions and results that prove the results arose in some Colombian language classrooms.

Methodology

Qualitative research is multimethod in focus, involving an interpretative, naturalistic approach to its subject matter. This means that qualitative researchers study things in their natural settings, attempting to make sense of or interpret, phenomena in terms of the meanings people bring to them (Denzin & Lincoln, 2005, as cited in Aspers & Corte, 2019, p. 142).

Consequently, the data obtained were properly framed according to the purpose of this study; yet the researchers collected data from a natural setting proposed for different CLIL classes implemented with children in 2022. In this way, qualitative research is suitable since data can be collected from videos, behavioral recordings, interviews, and observation (Haven & van Grootel, 2019). Those were the instruments used in this study to gather the information collected. This study was also developed under the action research (AR) approach. Clark (2020) defined:

> [AR] is an approach to educational research that is commonly used by educational practitioners and professionals to examine, and ultimately improve, their pedagogy and practice. In this way, [AR] represents an extension of the reflection and critical self-reflection that an educator employs on a daily basis in their classroom. (p. 8)

Then, action research was used by the researchers in advance to intervene in the context of CLIL implementation with children when reflecting, planning, designing, and adapting the pedagogical intervention (see Figure 4). In addition, our experience as English teachers guided this implementation to create learning environments intended to be meaningful for the participants.

Pedagogical Intervention

This pedagogical intervention arose from the lack of English language practice and learners' English language proficiency in regular classes (as reported by the participants' parents), as well as observations made by the teachers that showed the participants' difficulties in the target language. Therefore, we decided to design and carry out a pedagogical intervention (Figure 4 below) following the CLIL principles and stages presented in Figure 3. We implemented activities that sought to strengthen EFL while exploring different areas of knowledge, such as literature, mathematics, sciences, and history.

Figure 4 shows the pedagogical intervention process that was conducted from February to December of 2022, attending the classes on Saturdays for three hours. These sessions were developed in two different classes: on the one hand, Literature and Mathematics; on the other hand, Sciences and History. Each class had a duration of one hour and a half. In the same way, attending classes during vacation time was necessary to complete the sessions; these were four times a week, and each class had a duration of three hours. In the end, there were 120 hours of sessions, and these were divided equally between the four mentioned classes.

The teachers' participation was focused on the planning, organization, and application of each activity and assignment in the different subjects selected for this CLIL pedagogical intervention (see Figure 4). Likewise, they cooperated to adapt the syllabi in a way that might contribute to the learners' regular classes. Hence, this approach allowed the researchers

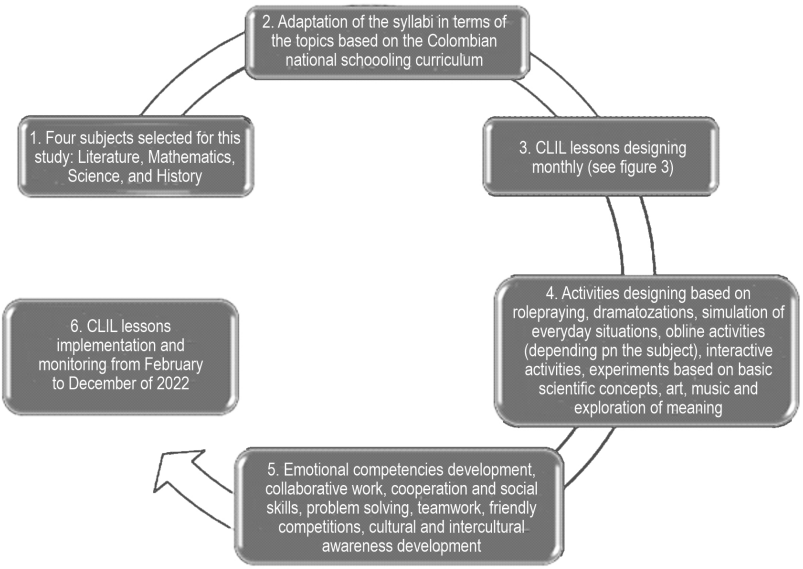

Figure 4. Pedagogical Intervention Cycle

Note. Own elaboration.

to include dynamics and strengthen contact with the language and culture. Similarly, as there were young learners, the classes included interactions, guided assignments based on experimentation, gamification issues, and craft activities. Finally, data were collected at suitable time intervals to verify the reliability of the findings.

Instruments

The instruments applied to gather data were the observation grid (see Appendix A), the interview, and video recordings. Different authors have stated that observation is a good tool to collect data, since "observation is a way of gathering data mostly in qualitative research, by observing the behavior, events, or noting physical characteristics in their natural setting" (Ekka, 2021, p. 17). As stated before, one of the benefits of observation is that people are likely to behave naturally; and the observation can involve actions to determine the scope and design some activities according to the learners' behavior (Fry et al., 2017). In this sense, the classes were observed by one of the researchers, who took field notes during the implementation of this study. Therefore, it was conducted a direct observation. When

the researcher who observed could not attend the sessions, the classes were recorded and analyzed later.

Later, an interview (see Appendix B) was applied to the students' parents to have an external but objective point of view. There was a semi-structured interview that sought to determine the parents' voices as a main source to provide reliable information, since they help their children in the development of various tasks, and support them during their childhood education, so they would be able to report first-hand data.

The collection of data was also done with videos; these were recorded randomly while developing specific activities proposed in classes. Data were taken from videos: students' behaviors, interaction, communication, and performance. Videos are a suitable instrument since the evidence may be categorized naturally or controlled (Wildemuth, 2017). In this study, these data were natural, because they were collected during the participants' daily activities. Finally, the videos were analyzed by the researchers, who took notes from repeated actions and patterns identified.

The researchers focused their observations and analysis of videos on learners' performances, behaviors, and limitations and identified the common patterns, taking as reference the information presented in Figure 2; this analysis was contrasted with the interview information. In short, the purpose of the three instruments was to analyze the learner's most repeated actions fit in the cognitive levels of the taxonomy presented in Figure 2.

Participants

The participants of this study were boys and girls between four and ten years old. The group consisted of seven girls and three boys, who have only had contact with the target language through the classes they receive at school, which is not bilingual, or through classes that were different from that of English, or that were guided in that language. This study took place in a private institution in Cajicá, Colombia; and the learners' parents accepted the implementation of the study with a signed consent form (see Appendix C) that allowed researchers to use the data collected; however, their identity remains as confidential information.

Data Analysis and Findings

This section presents the data analysis procedure and the research categories that emerged from the data collected. The method used to analyze the data was the modified grounded theory, and the researchers followed these steps: data collection, data transcription, constant comparison, open coding divided into axial and selective coding, core category,

and theoretical integration (Glaser & Strauss, as cited in Alnsour, 2022, p. 3). Two categories emerged from the analysis (see Table 2 below). The findings were contrasted with the conceptual foundation to answer the research question.

Table 2. Codification Process

Categories	Themes in data	Data codes
Learners' Cognitive Development Levels according to Bloom's Taxonomy	Learners' actions focused on the development of assignments	• Intuitively learners' language use. • Use of formulaic expressions and commands • Learners' multiple actions to communicate • Focus on assignment development • Learners' performances based on tasks
	New habits, and behaviors based on language use	• What to say vs how to act. • New behaviors and habits related to English use • Learners' actions development and changes
	Overcoming difficulties in English use, gaps in communication, and lack of vocabulary	• Learners' associations with previous knowledge • Miming and drawing to overcome a lack of vocabulary • Effort to steady English communication. • Harder cognitive processes development
Learners' Knowledge Dimensions Development and Communication Empowering	Normalization of English language use in daily activities with communicative purposes for life	• Use of English language beyond the classroom • Integration of language with daily activities • Normalization of English in different scenarios and people • Learning language vs experiencing language
	Leaners' knowledge development gradually and simultaneously because of the classes implemented	• Knowledge dimensions development based on classroom activities and tasks designed under the CLIL methodology • Procedures, awareness, problem-solving, and relationships between language and content. • English language use with real communication purposes

Learners' Cognitive Development Levels according to Bloom's Taxonomy

The results of the implementation revealed that the first cognitive level (*remember*) of Bloom's Taxonomy is overlooked, not because it is not important, but because the language

is used in CLIL as a vehicle to communicate, not a structure to be memorized and repeated, what implies that is done intuitively. In addition, in the ten video recordings, it was found that, instead of just remembering, retrieving, recognizing, identifying, and recalling words or basic information (first-level cognitive processes) when using English, the students were not focused only on the language itself but in communication; their processes showed an outstanding development on levels 2 and 3 (*understand* and *apply*). It was noticeable in actions such as paraphrasing some commands and formulaic expressions used in class. The greatest emphasis was on describing, explaining, interpreting, inferring, applying, illustrating, using, demonstrating, and performing in specific situations. Those are for example board games (in Mathematics); interactive games like additions, subtractions, and multiplications; the development of basic scientific concepts (in Sciences); and explaining the procedures followed to obtain results (in the other classes).

The students were told to develop varied tasks, not only in Mathematics and Sciences but also in Literature and History classes, such as dramatizations to improve their oral skills, jigsaw puzzles, guided readings, crafting activities, online games, and role plays (among others). They learned to solve problems in the real world and daily situations to promote natural interactions. For instance, once they were contextualized in a supermarket role play, they learned how to use didactic bills, exchange money, and pay. These actions were related to levels 2 and 3 (*understand* and *apply*) simultaneously. Along with the content and language, the learners' process does not purely consist of repeating and retrieving vocabulary that represents the first cognitive level; instead, when carrying out a task, they pay less attention to the grammatical accuracy of what they have to say and focused on how to act. Moreover, the "how to act" cognitive process from levels 2 and 3 is where the learners started using the English language more naturally, following a similar process when speaking their mother tongue.

Figure 5 shows some of the cognitive processes that the learners started developing in the English language when facing activities under the CLIL methodology.

Furthermore, the previous learners' cognitive processes (see Figure 5) were developed transversally, and the subject and actions fit in levels 2 and 3 according to Bloom's taxonomy, even though they were studying four different classes. These students' actions go beyond the classroom, as well as the content. CLIL was useful for them to act in specific academic and communicative situations that demand actions of understanding and applying. Those actions depend much on what they were told to do or the tasks to be developed, so the outcomes depend less on the content itself but more on the activities. This argument lies in the fact that CLIL integrates content and language where the language is used as a vehicle to communicate. For that matter, the students' main concern was not the mastery of the language but the development of the activities. As supported by the interview responses, some parents argued in this sense that:

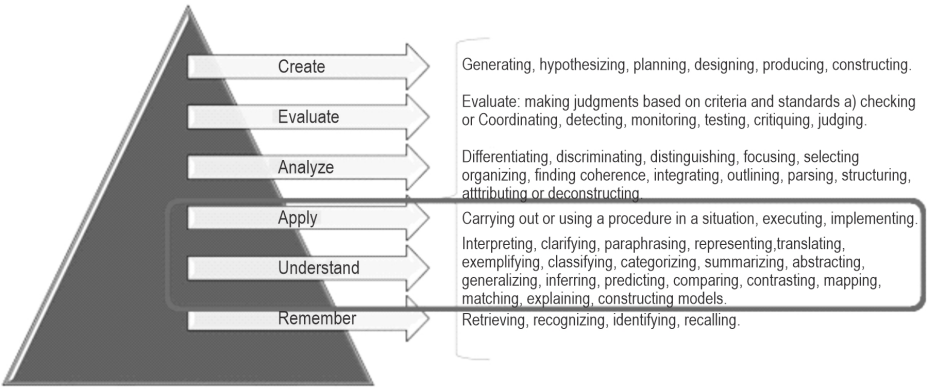

Figure 5. Participants' Cognitive Process First Insights

The English teacher mentions to me the great progress she has made in English vocabulary, and that the process of addition and subtraction is more advanced than her classmates, this did not happen before being in this class. (P1, Int., October 2022)[3]

My son asks me all the time to read different stories that have already been read in class, he corrects my pronunciation and teaches me new words, the truth is that I don't speak English, but the teacher at school tells me that the child is more aware about the language use. (P2, Int., October 2022)

It has been wonderful to see the progress the girls have made not only in English, but in all subjects, listening to them all the time doing regular things in English such as counting, playing hopscotch, and in general communicating with each other using several words in English, and they have improved their grades a lot, the teacher tells me that they have also regulated their behavior in class as now they understand, they enjoy more the classes. (P9, Int., October 2022)

According to these excerpts, the participants now perform several actions that they did not use to do (basic mathematical operations easier, reading in English, incorporating the target language as much as possible in their regular activities such as watching videos, playing games, and listening to music). The parents found changes in the learners when developing the homework as well as with their language use performance; this was because of the extra classes they took. The parents have also noticed changes in their children's behaviors such as paying more attention and participating more actively in classes, asking questions, losing fear

[3] To protect the sample's confidentiality, the participants' parents are identified using the letter P and a number to have control over the responses in a suitable order. For instance, P1 means "parent 1". The parents' quotes were translated into English by the researchers.
Obn., = Observation, Int. = Interview.

of speaking in English, and becoming less absent-minded; in short, they are more willing to learn. This way, the learners not only use the knowledge in class but in any academic setting. Now students show that learning with content is learning for life. Also, thanks to the observations, the researchers were able to reach some significant findings:

> *Some students constantly make some associations in terms of what they learned, and which are directly related to the input in that way; now they can differentiate and integrate concepts and ideas to use the information in new situations. The learners can focus on the commands and ask when necessary to perform and implement procedures, the language is not a problem.* (Obn., June 2022)

> *Several students develop actions to classify, simplify, structuring to use information depending on the communicative purpose or to carry out the interaction act.* (Obn., September 2022)

The previous findings were analyzed in the light of the revised Bloom Taxonomy (see Figure 6) to understand part of the scope of the implementation proposed in this study.

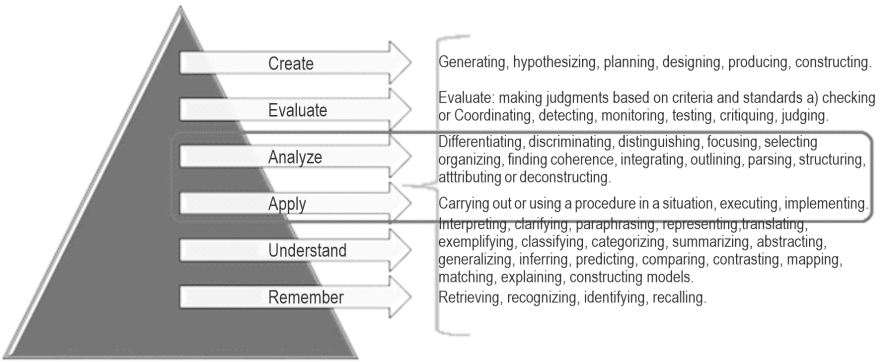

Figure 6. Apply and Analyze Level Cognitive Processes Development During the Implementation

As for the observation, the researchers point out that there is a strong relationship between levels 3 and 4 (*apply* and *analyze*). Consequently, it was observed that most of the cognitive process for each level is developed by the students simultaneously; although each level has some specific actions that can be developed, it does not imply that the participants must develop the cognitive processes levels (*remember, understand, apply, analyze, evaluate, and create*) in the revised Bloom's taxonomy in ascendant order. That is to say, the participants do not move forward level by level if they already do the actions, but they can manage actions from different levels at the same time, which means that the actions might be settled altogether, and the reason lies on the fact that the tasks under CLIL demand to use different processes. For instance, in the development of the activities, some demand that

the participants select and structure information, make comparisons, organize and integrate ideas to communicate, and carry out and follow procedures focusing on what they have to do. Then, issues such as the learning goals, input used by the teacher, and output produced by the students, among others, make the participants manage actions at different levels.

However, during the observation and the video recordings, it was analyzed that, if children were unable to understand a word or concept, they resorted to body movements or drawings to avoid using the L1 to communicate. We found that, after some sessions, the learners repeated this behavior with their classmates and, instead of translating the word, they preferred to draw it, so as not to speak Spanish. In short, despite the lack of vocabulary or the repetition of basic vocabulary, this helped learners to go from cognitive level 1 (*remember*) to level 4 (*analyze*). Hence, the learning process goes beyond remembering or retrieving words to develop more complex processes, such as drawing connections among their ideas and finding coherence between some actions to communicate. Therefore, the learners preferred to perform harder procedures, such as using the knowledge they already had to make associations or making themselves be understood by using related vocabulary, or by contrasting and experimenting with different ways to express themselves; this, even though it implied a more difficult task for them.

Learners' Knowledge Dimensions Development and Communication Empowering

In the three instruments, it was evident that the participants grew habits that were intended to be steady since they integrated the use of the target language with their daily activities. Along with their academic matters, the participants tried to be in contact with the English language as much as possible, and in scenarios different from the school. This situation gave evidence of the early-stage development of the factual knowledge stated by Anderson et al. (2001, as cited in Wilson, 2016) since the learners integrated the basic elements needed with English in their regular activities.

In the interview responses, it was found that:

> *The girls ask me all the time to speak to them in English, the level I have is not good enough, but I try to speak to them in English during games or in some moments we share during meals.* (P9, Int., October 2022)

> *My son asked me to watch his favorite series in English, the truth is that I don't understand anything, but I see that he enjoys it and strives a lot.* (P6, Int., October 2022)

Moreover, before the whole syllabus was fully implemented, P7 mentioned that he would like to have access to some material used:

> *Would it be possible for you to share with us some activities to do at home or to show us, as parents, how to follow what you do in the classes? My child has improved, and he goes on.* (P7, Int., October 2022)

These answers gave evidence that the relationship developed between the participants and the English language grew so much that their parents were asking for extra material since they noticed their children got into learning as well as experiencing the target language, and they needed to be prepared to help their children. Therefore, it can be affirmed that the students needed to experience the language beyond its study, and it implied living the language and using it constantly. Besides, the observation carried out in the classes reports similar information in this regard, and contributes to these findings:

> *During the visit of a family who wanted to know more about this institution and the way how this works, the children heard one of the teachers speaking in Spanish and they all said together: "Teacher, no Spanish, English, yes". As the learners develop some activities with parents at home to normalize English use.* (Obn., November 2022)

Hence, the children began to normalize communication in English, and they sought to find other ways to make up for the lack of vocabulary to communicate and created strong bonds of companionship and purposeful group work. For this reason, the participants of this study became more demanding regarding the use of the language, even though they found some gaps in the communication. Therefore, the conceptual knowledge stated by Anderson et al. (2001, as cited in Wilson, 2016) was strengthened since the interrelationships between language and content in this study enable them to function together with communication in and out of the classroom. Finally, the identification of basic communication concepts and phrases occurred gradually, but remained stored in their long-term memory, as is evident in the following excerpts from the videos and the classroom observation:

> *A student asked the teacher if he could introduce the activity that day, he argued he could remember all the words and the commands to introduce the activity. It was observed that regular activities were internalized by students and then, used naturally.* (Obn., May 2022)

> *The students tried to keep communication with peers like how this is carried out in the classes. It was observed that the students presented some gaps in terms of vocabulary since they were learning the target language, but those gaps did not represent the limitation to communication. Moreover, the participants interacted naturally, yet one of the principles of CLIL is to use the language as a vehicle to communicate, not to be studied.* (Obn., July 2022)

> *The teacher tells us that now in English classes her classmates often ask her what words they don't know, so now she is the monitor, and she is happy to be the leader in the classroom.* (P7, Int., October 2022)

In this study, the participants showed that they were able to develop with greater emphasis two knowledge dimensions: factual and conceptual; this, according to their needs, interests, age, communicative purposes, and task activities development. This means that the participants started to use the English language and related it to the content progressively. In the beginning, their performance was somehow limited due to the lack of practice, but as the process continued, they started to integrate basic elements with larger structures that represented more completed processes in the classroom. Also, it was found that the

participants could overcome difficulties related to the lack of vocabulary since these did not limit their communication or their assignment development. Instead, the children aimed to make associations with other elements to reach their communication process, proving again the development of the conceptual knowledge that was presented within a larger structure to function together during the implementation proposed for this study. Moreover, the participants reached to make a continuous process of reinforcement and learning with the elements they had to fulfill the learning outcomes proposed in the classes.

During the video analyses and the observations, it was seen that implementing CLIL classes empowers communication, which is not only to express and receive ideas and opinions in specific situations. As Khamidovna (2020) stated, the concept of communication is much broader than the act of speaking; communication is not just about talking, it is also about listening, understanding, starting a conversation, and accepting the other. These learners acquired these skills: they met several material and emotional needs; they expressed their ideas first using individual words and phrases, and then using grammatically correct sentences; and they were able to listen, understand, and answer during the interactions. To sum up, communication is a two-fold process, and the previous aspects were evident as regular behaviors in at least ten of the videos.

This process was done according to the participants' cognitive levels and ages. In that sense, it does not mean that they were able to elaborate formal, complex, or long speeches using a wide range of deep mental processes, but they were able to communicate according to their age, peers, needs, and purposes. For instance, there was an activity based on nutrition and healthy food. The students were immersed in the easy preparation of food like oatmeal cookies. During the baking process, they interacted with the teacher and peers, talked about their personal food likes and dislikes, and, in general, asked questions related to new food vocabulary and the baking procedure *(*e.g., *"Teacher, how do you say "pasas" (raisins) in English?)*. Therefore, their possibilities of interacting are extended, since they do not find the little gaps as limitations, but as opportunities to be in contact with the world; and they understand that language is perceived as a tool to communicate, not a structure to be memorized and repeated. These findings are aligned with the procedural and metacognitive knowledge stated by Anderson et al. (2001, as cited in Wilson, 2016) because the learners looked for ways to fulfill the learning outcomes continuously and tried various procedures when having difficulties.

Ultimately, it was found that procedural and metacognitive knowledge is developed through the entire process since the learners participated and used the knowledge all the time, not just for specific assignments or communicative situations. Thus, the participants faced challenges related to naturally living the language, and for that matter, their cognition and awareness were steady. Therefore, CLIL helped students develop cognitive processes and knowledge dimensions altogether, gradually, and simultaneously.

Conclusions and Implications

In the first place, CLIL methodology allows the students to grow learning habits transversally and simultaneously. Thus, the participants not only developed actions to be performed in class or to carry out some specific actions in concrete situations, since they were not interested in performing according to an assignment, but in regulating their learning outcomes. Also, the learners performed actions depending on "how to act". Due to this, their performances do not follow a set of skills or actions to be completed step by step. In this regard, and according to the revised Bloom's taxonomy, it does not imply that the students first develop some cognitive process that fits in each level and then move forward to the next one in an ascending order, according to said taxonomy.

Moreover, during the learning process, students were focused on reaching some goals, so they did not pay attention to what to say, but to how to act. As a matter of fact, in the "how to act" stage the participants of this study performed cognitive processes from different levels, and most of those actions were in levels 3 and 4 (*apply* and *analyze*); level 2 (*understand*) was also developed during this whole process. Likewise, this study revealed that level 1 (*remember*) is overlooked and that the CLIL implementation could not provide insights for level 5 (*evaluate*) nor level 6 (*create*), at least in this study. Similarly, the learners connected the content and language, proving the factual knowledge; in the same manner, while developing the activities, the students integrated basic with harder procedures to fulfill their duties, while cognition and awareness were presented not only in this implementation but in the way the participants started experiencing and living the target language. So, the learners were able to develop the four knowledge dimensions: factual, conceptual, procedural, and metacognitive, as stated by Anderson et al. (2001, as cited in Wilson, 2016). This fact was evident when they participated in the group activities and assignment development since they integrated their knowledge when fulfilling their academic duties as well as their leisure activities.

Finally, based on the design and the complexity processes for the learners' competence, there might be stronger insights into the CLIL scope. These insights are schemed in Table 2.

Table 2. Participants' Insights Based on the Revised Bloom's Taxonomy

	The Cognitive Processes					
The knowledge dimensions	**Remember**	**Understand**	**Apply**	**Analyze**	**Evaluate**	**Create**
Factual knowledge		X	X	X		
Conceptual knowledge		X	X	X		
Procedural knowledge		X	X	X		
Metacognitive knowledge		X	X	X		

Table 2 reports the cognitive process and knowledge dimension axes fulfilled once the CLIL was implemented. So, this study contributed to managing good learning habits that can be used in different learners' scenarios. The management of those habits is increasing, depending on the students' effort and how challenging the proposed activities are. In short, the improvement of the learners' actions that can be measured in the revised Bloom's taxonomy is something that might have increased based on the design and the difficulty of the activities, and that is a process that needs to be continued.

In the same way, this process makes the participants demand more complex scenarios; for instance, the students found some gaps related to the vocabulary to express themselves, but they looked for different ways to keep up with the communication. On the contrary, it was an empowering communication development since they made the use of the language meaningful and applied it in places different from school and the academic context.

A limitation of this study is the small number of participants. However, the sample allowed for a deeper analysis and understanding regarding the cognitive process as well as the development of knowledge dimensions once CLIL was implemented. The findings were examined in detail in such a way that the insights provided were analyzed consciously. This study might be replicated in other scenarios as well as large-scale populations to generalize results and get possible results from levels 5 and 6.

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Appendix A
Class Observation Format

Researcher-observer: _____

This format was filled out during the direct observations**.**

Obs. N.	Date:	Students' performance	Students' behavior	Students' limitations	Common patterns
Other issues identified:					
Obs. N.	**Date:**	**Students' performance**	**Students' behavior**	**Students' limitations**	**Common patterns**
Other issues identified:					
Obs. N.	**Date:**	**Students' performance**	**Students' behavior**	**Students' limitations**	**Common patterns**
Other issues identified:					
Obs. N.	**Date:**	**Students' performance**	**Students' behavior**	**Students' limitations**	**Common patterns**
Other issues identified:					

Appendix B
Entrevista

La presente entrevista se ha elaborado con el objetivo de obtener información sobre el proceso de acompañamiento que usted le hace a su hijo con las tareas y conocer el desempeño de los mismos que usted ha observado con base en las clases que está tomando en esta institución que trabaja bajo la metodología de AICLE.

Le rogamos que responda de la manera más sincera posible.

1. ¿Ha notado cambios en la forma como su hijo desarrolla tareas? Justifique su respuesta.
2. ¿Nota cambios en el acompañamiento que le hace a su hijo? Justifique su respuesta.
3. ¿Qué es lo que más ha evidenciado en el proceso de aprendizaje de su hijo(a) a través de las clases tomadas en Step-up by Kidilea?
4. ¿Ha habido algún tipo de variación en el desempeño de su hijo en el colegio?
5. En el acompañamiento que usted le hace a su hijo ¿qué tipo de comportamientos persisten desde antes de tomar clases en Step-up by Kidilea?
6. ¿Considera usted que las clases que su hijo toma aquí le han ayudado a mejorar? Si / No, justifique su respuesta.
7. ¿El aprendizaje de su hijo/ hija ha cambiado? Si / No. Justifique su respuesta.

Appendix C
Consent Form

Bogotá, Day, Month, Year

Estimado Padre de Familia
Ciudad

Reciba un cordial saludo.

A través del presente nosotros, _____ y _____, solicitamos su autorización en este formato de consentimiento en el que concede su autorización para toma de datos que serán usados en un proyecto de investigación con fines exclusivamente académicos.

Los instrumentos con los que recolectaremos la información son: una entrevista a ustedes en calidad de padres de familia y acompañantes de sus hijos en el proceso de desarrollo de tareas, observación de clase y artefactos de los estudiantes que son videos de las clases que se grabarán aleatoriamente, para posteriormente analizarlos.

Firmando este formato, usted acepta el uso de datos, observación y grabación de videos con fines académicos-investigativos, siendo conscientes de que este documento no genera ningún tipo de beneficio económico a ninguna de los dos partes y permite la reproducción de la información recolectada.

Cordialmente,

Firma y Autorización Padres de Familia

Nombre del Estudiante