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# CONTENT- AND LANGUAGE-INTEGRATED LEARNING-BASED STRATEGIES FOR THE PROFESSIONAL DEVELOPMENT OF EARLY CHILDHOOD EDUCATION PRE-SERVICE TEACHERS

ESTRATEGIAS DE APRENDIZAJE INTEGRADO DE CONTENIDO Y LENGUA PARA EL DESARROLLO PROFESIONAL DE DOCENTES EN FORMACIÓN PARA LA EDUCACIÓN DE LA PRIMERA INFANCIA

STRATÉGIES D'APPRENTISSAGE INTÉGRÉ D'UN CONTENU ET D'UNE LANGUE POUR LE DÉVELOPPEMENT PROFESSIONNEL DES ENSEIGNANTS EN FORMATION POUR L'ÉDUCATION DE LA PETITE ENFANCE

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## ABSTRACT

This research article presents the results of an exploratory study that was conducted with a group of 14 early childhood education pre-service teachers at a private Colombian university. It intended to determine: 1) the amount of metalanguage expressions used for teaching English as a foreign language (EFL) and foreign language (FL) content; 2) the number of concepts related to the teaching of EFL and FL content pre-service teachers were able to learn in a 7-session (14 face-to-face hours) course based on a methodology inspired by the content and language integrated learning (CLIL) approach, using songs, rhymes, and poems in English; 3) the degree of difficulty pre-service teachers perceived about teaching English and English content to young children. This quasi-experimental study was performed with pre- and post-study tests given to one group, analyzing quantitative data through a non-parametric statistical hypothesis test and a non-parametric measure of rank correlation. Pre-service teachers were found to successfully learn vocabulary and concepts, but their perceptions about the degree of difficulty of teaching EFL and FL content remained basically the same as prior to the course. In addition, the correlation between the participants' level of English and their learning process was analyzed, as well as the correlation between English proficiency level and perception of the degree of difficulty of teaching EFL and FL content. The results show a strong correlation in the first case, but no correlation for the second one.

**Keywords:** content and language integrated learning, early childhood education pre-service teachers, professional teacher development, CLIL competences, CLIL principles

## RESUMEN

Este artículo de investigación presenta un estudio exploratorio que se realizó con un grupo de 14 estudiantes de pedagogía infantil en una universidad privada colombiana. El estudio pretende determinar: 1. La cantidad de expresiones de metalenguaje usadas para enseñar inglés como lengua extranjera y para enseñar

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contenidos en una segunda lengua. 2. La cantidad de conceptos relacionados con estos temas anteriormente mencionados, que los estudiantes de pedagogía infantil aprendieron en un curso de 7 sesiones presenciales (14 horas en total) siguiendo una metodología inspirada en el enfoque del Aprendizaje Integrado de Contenido y Lengua (AICLE). El tema del curso era la enseñanza de canciones, rimas y poemas a niños de primera infancia. 3. Así mismo, el estudio también pretende determinar la percepción que tienen los estudiantes de pedagogía infantil sobre el grado de dificultad de enseñar inglés y contenidos en inglés a niños de primera infancia. El estudio es exploratorio y cuasi experimental ya que se realizó una prueba inicial y una prueba final de sólo un grupo; y es cuantitativo debido a que únicamente se analizó información cuantitativa por medio de un test de hipótesis estadística no paramétrica y una medida no paramétrica de rangos de correlación. En los resultados se observó que los estudiantes fueron exitosos en el aprendizaje de vocabulario y conceptos, aunque sus percepciones iniciales sobre la dificultad de la enseñanza de inglés como Lengua Extranjera y de contenidos en Lengua Extranjera se mantuvieron estables durante la intervención. Así mismo se analizó la correlación entre el nivel de inglés de los participantes y su proceso de aprendizaje y entre el nivel de inglés de los participantes y su percepción sobre la enseñanza. Para el primer caso, la correlación mostró ser alta, mientras que en el segundo caso no se encontró correlación.

**Palabras clave:** aprendizaje integrado de contenido y lengua, profesores de educación infantil en formación, desarrollo de competencias en AICLE, principios de AICLE

## RÉSUMÉ

Cet article de recherche présente une étude exploratoire menée auprès d'un groupe de 14 étudiants en éducation élémentaire dans une université colombienne privée. L'étude vise à déterminer : 1. La quantité d'expressions de métalangage utilisée pour enseigner l'anglais langue étrangère et de la matière dans une deuxième langue. 2. Le nombre de concepts liés aux sujets déjà mentionnés que les étudiants en pédagogie de l'enfance ont appris dans un cours de 7 séances de classe (14 heures au total) selon une méthodologie inspirée par l'Enseignement d'une Matière Intégrée à une Langue (EMILE). Le thème du cours était l'enseignement de chansons, rimas et poèmes aux petits enfants. 3. L'étude vise également à déterminer la perception des étudiants en pédagogie sur le degré de difficulté d'enseigner l'anglais et de la matière en anglais aux petits enfants. Cette étude est exploratoire et quasi expérimentale parce qu'elle examine un test initial et un final dans un seul groupe ; et elle est quantitative, parce qu'elle analyse seulement des informations quantitatives en utilisant un test d'hypothèses statistiques non paramétriques et une mesure non paramétrique de séries de corrélation. Les résultats ont montré que les étudiants ont réussi l'apprentissage du vocabulaire et des concepts correspondants, bien que leurs perceptions initiales sur la difficulté de l'enseignement de l'anglais comme langue étrangère et le contenu en langue étrangère soient demeurées stables au cours de l'intervention. De même, on a analysé la corrélation entre le niveau d'anglais des participants et leur processus d'apprentissage, et entre le niveau d'anglais des participants et leur perception de l'enseignement. Dans le premier cas, la corrélation a été élevée tandis que dans le second, aucune corrélation n'a été trouvée.

**Mots-clés :** contenu intégré et apprentissage des langues, enseignants de la petite enfance en formation, développement des compétences en contenu intégré et apprentissage des langues, principes de contenu intégré et de l'apprentissage des langues

## Introduction

Teacher training experiences in CLIL have been researched and reported mostly in the European Union, with very few outside its borders. One of those studies (Hunt, 2010) reports on the EU-funded project e-CLILT (e-based Content and Language Integrated Learning Training), which was developed to solve the shortage of qualified CLIL teachers and trainers across all the EU. The case of Spain is symptomatic of this situation; there, CLIL programs have been gaining ground rapidly, at all educational levels. As a result, in just a decade, Spain has become a leader in CLIL practice and research, and CLIL programs have become a burgeoning model (Ibarrola, Lasagabaster, & Ruiz, 2012). However, as Lasagabaster & Ruiz de Zarobe (2010) claim, even in that country, CLIL studies are still at an early development stage. In the Latin American context, citing the case of Colombia, Curtis (2012) reports on a study conducted with practicing teachers from several parts of the country, in which he found that Colombian teachers are unaware of the CLIL work being performed in their own country. To illustrate this, he cites the cases of Restrepo Guzmán (2008), Moreno Alemy (2008), and Corrales & Maloof (2009), among others. This work includes a specialized journal, the *Latin American Journal of Content and Language Integrated Learning*, or *LACLIL*, published by Universidad de La Sabana. Curtis (2012) thinks it would be important to highlight such work in any CLIL training program in Colombia. The study also addresses the teachers' lack of familiarity with key aspects of CLIL and attributes this situation to their heavy workload. Besides this exploration work, no similar experiences or research studies about CLIL teacher training for early childhood education pre-service teachers have been reported so far in Colombia, which makes this exploratory study relevant, since it can serve to stimulate the performance of new and much needed studies on this topic.

Given the potential benefits that bilingual education in Colombia stands to gain from the CLIL approach (Coyle, Hood & Marsh, 2010), it is important to address the need for well-trained teachers, qualified not only to give pedagogically sound lessons, but also with the ability to design curricula under the CLIL approach. Some higher education institutions have started to offer undergraduate and graduate degrees in bilingual education in Colombia, but the country's needs in that regard far exceed the efforts that are currently being made. The government has undertaken an ambitious national program of bilingualism aimed at having high school graduates achieve the B1 level of English in the Common European Framework of Reference for Languages (CEFR) (Ministerio de Educación Nacional, 2014-2018, n.d.).

Within the aforementioned context, a group of pre-service, early childhood education teachers was given a course under the CLIL approach on how to teach songs, poems and rhymes to young children as part of the syllabus of their program, which was the first time such a course was given under this type of approach. The conclusions of this exploratory study provide an opportunity for stakeholders to reflect upon the needs and possibilities of teacher-training for CLIL contexts in a situation where students have different English language levels and the low level of the teachers' English challenges institutional aims.

In order to establish the impact of the implementation of a course with a CLIL-oriented methodology, two objectives and six specific hypotheses guided this study:

### Objectives

1. To establish the impact of a course on teaching songs, rhymes and poems intended for young children in EFL to a group of early childhood pre-service teachers following a CLIL-oriented methodology

2. To establish the correlation between pre-service teacher English levels and vocabulary and concept acquisition, as well as the perception of teaching EFL and FL content to young children

### Hypotheses

1. The intervention will deliver a statistically significant benefit to the pre-service teachers in terms of learning EFL and teaching-related vocabulary in FL content (metalinguage expressions).
2. The intervention will deliver a statistically significant benefit to the pre-service teachers in terms of learning concepts about teaching FL content and EFL.
3. The intervention will deliver a statistically significant positive change regarding the pre-service teachers' perceptions about the teaching of songs, poems and rhymes in English to young children.
4. There is a strong, positive correlation between the pre-service teachers' level of English and their results on the vocabulary (metalinguage expressions) test.
5. There is a strong, positive correlation between the level of English of the pre-service teachers and their results on the concepts test.
6. There is a strong, positive correlation between the pre-service teachers' level of English and their results on the perceptions test.

### Theoretical framework

To implement this strategy, we took the following concepts into consideration: what CLIL is, CLIL principles, CLIL teacher competences, CLIL and teacher training, and the characteristics of a good CLIL teacher training program. Some ideas related to these concepts will be explained.

#### What is CLIL?

The CLIL approach has arisen as an innovative way to simultaneously develop FL skills and those related to content learning objectives. CLIL is an educational approach focusing on the processes of

teaching and learning an additional language and the content taught in a language different from one's native language. CLIL differs from content-based language teaching and English as a Second Language (ESL) or EFL teaching, although they do share basic theories and practices. Where it differs lies in the simultaneous learning outcomes related to language and content (Coyle, Hood & Marsh, 2010). In Europe, for example, the way in which the CLIL approach has developed has exhibited a number of features that make it different from other types of bilingual education. As Dalton-Puffer, Nikula & Smit (2010) claim:

CLIL is about using a foreign language, not a second language. That is to say, the language of instruction is one that students will mainly encounter at school since it is not regularly used in the wider society they live in. It also means that the teachers imparting CLIL lessons will normally not be native speakers of the target language. Neither are they, in most cases, foreign-language experts but content-experts (p. 1).

Thus, the main difference between CLIL and other content-based approaches, as Wolff (2007) explains, is that the content of the lessons is not based on everyday life topics, but rather on topics related to school subjects, academic or scientific disciplines, or professional occupations.

Other authors have a diverse view on what CLIL is, as in the case of Mehisto, Marsh, & Frigols (2008, p. 29). Presenting their insights on the CLIL approach, they explain that the most important features of the methodology are

- multiple focus
- safe and rich learning environment
- authenticity
- active learning
- scaffolding
- cooperation

According to these authors, the above are not exclusive features of CLIL; they also complement their position by arguing that CLIL needs to be led by specific outcomes that can be, one, content-related learning outcomes, two, language-related



learning outcomes that support the acquisition of content, and three, outcomes related to general learning skills (Mehisto, Marsh & Frigols, 2008, p. 101). In addition, other authors have pinpointed the importance of learner motivation (Doiz, Lasagabaster & Sierra, 2014) and autonomy (Adamson, 2014), as well as authenticity (Pinner, 2013) in the development of successful CLIL lessons (Banegas, 2015).

### CLIL Principles

Currently, there is a deep understanding of language acquisition and language learning as a result of comprehensive research on this topic. The benefits derived from children's language learning integrated into other contexts are described well by Xanthou (2011), who found that

learning content through the medium of the L2 provides opportunities for learning content and language in meaningful settings, activates background knowledge, allows linguistic interaction with teacher and peers which allows scaffolding to occur, and promotes both the academic and social aspects of the target language. (p. 125)

This finding shows that, in CLIL classrooms, language is learned in a more natural way because there is a real need to learn the content of the lesson, making the focus on cognition and communication meaningful in the classroom. However, this does not always occur in older children and adults, since schools do not always provide the possibility of having integrated contexts. What makes CLIL natural is that, more than dealing with subjects and then adding the language, it is about the systematic integration of content, which leads to both conceptual enrichment and linguistic progression, as stated by Do Coyle in a recent interview (Piquer & Lorenzo Galés, 2015). This is achieved through CLIL's 4Cs framework: content, communication, cognition and culture.

Hence, a teacher who plans a class based on the CLIL approach considers specific aims for each of these four components, which is to say that,

regarding content, the teacher plans specific goals linked to the thematic learning, skills and understanding of the context. Regarding communication, the goals have to do with the language of learning, language for learning and language through learning, in other words, the language needed to learn the content. As far as cognition is concerned, it refers to the higher and lower order thinking skills as depicted in Krathwohl's (2002) revised version of Bloom's taxonomy (1956). Some higher order thinking skills (hereinafter known as HOTS) are, for example, hypothesizing or problem solving. Lower order thinking skills (hereinafter LOTS) include remembering, understanding, and applying new knowledge. Finally, culture refers to "self" and "other" awareness, identity, citizenship, and progression towards multicultural understanding. When planning a lesson based on the CLIL approach the teacher needs to clearly establish specific goals in each of the components and the learning outcomes he expects the students to achieve by the end of the lesson (Coyle, Hood & Marsh, 2010).

### Competences for CLIL teachers

A well-trained CLIL teacher must have certain qualities, competences and skills. These skills are included in the CLIL teacher's competences grid developed by Bertaux, Coonan, Frigols-Martin, & Mehisto (2009), which includes a broad number of competences that were summarized by Mehisto, Marsh, & Frigols (2008), as cited by Hillyard (2011):

- knowledge of methodology for integrating both language and content;
- ability to create rich and supportive target-language environments
- ability to make input comprehensible;
- ability to use teacher-talk effectively;
- ability to promote comprehensible student output;
- ability to attend to diverse student needs;
- ability to continuously improve accuracy. (2011, p. 6)

Finally, it is important to note that skilled CLIL teachers master Bloom's taxonomy (1956)—specifically Krathwohl's (2002) revised version—at the HOTS level and Vygotsky's (1962) scaffolding techniques for knowledge and language (Hillyard, 2011).

### CLIL and teacher training

After looking at the futuristic picture as well as the benefits that the CLIL approach can bring to bilingual education in Colombia, it is evident that it is necessary to have well-trained teachers who can give pedagogically sound lessons—both in language and content—by means of developing the aforementioned skills and competences. Some higher education institutions have started to offer undergraduate and graduate degrees in bilingual education in Colombia, but the needs of the *Colombia Bilingüe* program (Fandiño-Parra, Bermúdez-Jiménez, Lugo-Vásquez, 2012) for public schools and those of private schools exceed the efforts that are currently being made in the country, not to mention the in-service teacher training needed in bilingual education environments.

In regards to the benefits of CLIL, an increasing number of studies show they surpass the more traditional EFL programs, at least in terms of language learning. One of those studies is Värkuti's (2010), in which she found that CLIL students had significantly better skills in applying their broader lexical and grammatical knowledge in various situations, and that they outperformed the control group in text coherence and sociolinguistic context. A more recent example is supplied by Bret's (2014) doctoral dissertation consisting of a comparison between young learners' development of oral production in CLIL and EFL contexts where the author presents a positive outcome in favor of CLIL. Although more moderate enthusiasm about the advantages of CLIL can still be perceived in Bret, she acknowledges the finding that "CLIL has the potential to offer the optimal conditions for language learning to take place in instructional contexts" (p. 378), and claims that

the exploitation of this potential heavily depends on the provision of quality training for teachers.

As can be inferred from the number and complexity of the competences that a CLIL teacher is required to develop, CLIL teacher training takes time and effort. For this reason, it is more fruitful to start the process at the university (Bıçaku, 2011) level, where pre-service teachers are beginning their training. Formal undergraduate and graduate programs are an optimal setting to train teachers in the CLIL approach because of the demand on the teachers' time resulting from the number of aspects to be covered and the complexity of the competences that need to be developed in the teachers.

Despite the fact that in other educational contexts CLIL practices are being widely researched, this is not the case in Colombia, where it is clear that more research needs to be done in CLIL to ensure that improved teaching practices are established (McDougald, 2009). As found by Cano (2015), content teachers lack both the appropriate English proficiency level and training necessary to integrate content and language in their classes. For McDougald (2009), there are many different ways in which institutions in Colombia integrate the teaching of content and language. Some institutions favor the learning of content over language, and in many situations learning objectives for formal language are not established. This situation would leave the decision up to the teacher regarding the method to use in class as well as the content-related language to focus on. This creates a wide range in the diversity of CLIL teachers, and in many cases many of them probably would not easily change their teaching methodology. In some situations, content class teachers (Math, Social Studies, Biology, etc.) feel they fall behind in their curriculum if they devote time to teaching the language required for that content (McDougald, 2009), and Järvinen (2008) points out that challenges exist for content teachers who may feel that the teaching of the language may become an obstacle in addition to those they

already have. Furthermore, most content teachers are not language specialists, and during their practice, they would very likely leave out important steps in the development of the second language. Despite such content-teacher related problems under the CLIL approach, there are some cases of teachers in Colombia who are specialized in the teaching of language and content and who closely work with language specialists in different institutions (McDougald, 2009).

On the other hand, in other locations in Latin America, research on CLIL has shown different adaptations teachers have made to the approach according to their contexts. In Argentina, for instance, teachers seem to give more preference to a language-driven approach in secondary and high school rather than to a content-driven approach (Banegas, 2015) or dual focus approach (Mehisto, Marsh, & Frigols, 2008). The interest in CLIL as a possible teaching framework in new secondary education curricula has increased a lot due to the country's recent educational reforms. Banegas (2015) conducted a research study in Argentina with 47 unqualified practicing teachers or trainees who attended an online initial teacher education course to obtain their teaching degrees as teachers of English, all between 20-40 years old. On average, they had around 5 years of teaching experience. Most of the trainees had different teaching positions at both public and private schools and they regularly taught English two hours a week. He found that a language-driven CLIL was evident in teachers' lesson plans as a language-teaching approach with the following characteristics:

- It is usually aimed at B1 learners. This indicates that the trainees may believe that CLIL is effective with learners who already know "some English."
- It is used to teach content-specific vocabulary.
- It is based on learners' prior knowledge.
- It is useful to revise some language aspects such as tenses but not to introduce them.

- The content serves as context for meaningful language practice and development through oral and written skills.
- It is more effective when materials are authentic, multimodal, and visual.
- It is based on collaboration between learners and the teacher (p. 125).

Banegas's (2015) conclusion was that unqualified practicing teachers may initially harbor the assumption that CLIL is an approach best suited for older or more proficient students, and that it should be implemented when learners had already developed their basic language skills through other approaches such as the communicative approach; nevertheless, he clarifies that more data would be needed to continue reflecting upon this conclusion.

### Characteristics of a good CLIL training program

In order for a training program for pre-service CLIL teachers to possess all the necessary characteristics mentioned previously, we have to consider the specific circumstances of each educational setting at the national and the institutional levels. As Pistorio (2009) points out, there is much to be done in terms of theory development that can serve the foundations for new methodologies. In the case of Colombia, in order to train teachers in all the skills pinpointed in the grid (Bertaux, Coonan, Frigols, & Mehisto, 2009) in the "Competences for CLIL Teachers" section, the needs of a teacher-training program can be summarized in the development of three types of competences: those related to language, theory and methodology, which also fall in line with the ones identified by Pistorio (2009). Delving into each of these concepts and specifically how pre-service teachers could be trained falls outside the scope of this study.

Similarly, Banegas (2015) suggests that teacher-training for CLIL should begin by reflecting upon teachers' experiences of their practices and beliefs in order to develop critical and



“context-responsive pedagogies for the integration of curricular content and language learning. Initial language teacher education programs need to incorporate CLIL based on trainees’ prior experiences as learners and their possible teaching practices” (p. 126).

### Description of the study

Throughout 7 weeks a group of 14 early childhood education pre-service teachers in their third semester participated in a course called “Teaching songs, poems and rhymes to young children in EFL”. The objective of the course was to improve pre-service teachers’ competences in terms of topic-related vocabulary and concepts related to EFL teaching. An additional aim was to change their perceptions about content teaching in English. To achieve these objectives, the pre-service teachers were acquainted with specific approaches and methodologies for teaching songs, poems and rhymes to young children in a FL.

The pre-service teachers who participated in the course had different English levels according to the CEFR, as shown in Figure 1.

Most of the participants in the course were also taking regular English classes, and participants under B2.1 level were studying EFL in their regular classes at the institution where this intervention was made. The institution has a policy of bilingualism that requires students to take an international exam that

certifies they have achieved B2.1 level at the end of the program. Under this policy the pre-service teachers in the study took 4 weekly hours of face-to-face classes and 8 hours of independent work in regular EFL lessons for 7 consecutive weeks.

Regarding the CLIL-oriented classes, the pre-service teachers received 14 hours of face-to-face classes with 21 hours of independent work. At the beginning of the course, a test was given to assess their knowledge of concepts related to EFL and FL content in teaching as well as their perceptions about teaching the topic. The same test was given in the 7<sup>th</sup> week and the results were analyzed. No standardized test was found with the desired characteristics, so the researchers designed the test used in the study and had it validated by experts.

The course content included metalanguage about teaching EFL, as well as approaches, methodologies and activities for teaching EFL and content in FL to young children. There were also classroom activities such as pair, group or individual work where the pre-service teachers developed HOTS such as problem solving and creativity, and LOTS such as remembering, understanding and applying new knowledge. In addition, there were reflection questions intended to raise cultural awareness. The use of L1 (Spanish) was allowed when the pre-service teachers from levels A1.1 to A2.1 needed to use it.

These course characteristics allowed the pre-service teachers to work on the content of each class in this way: first, they received some guidance on the topic they were going to see in the following class, then they worked at home on that topic through readings and activities with scaffolded explanations and exercises intended to help them understand that specific topic. They usually received a PowerPoint presentation or an online class guide with the material they needed to work on. In an attempt to follow the flipped classroom (Brame, 2013) methodology, this PowerPoint presentation or class guide had activities, websites and videos used to guide the pre-service teachers’ autonomous work.

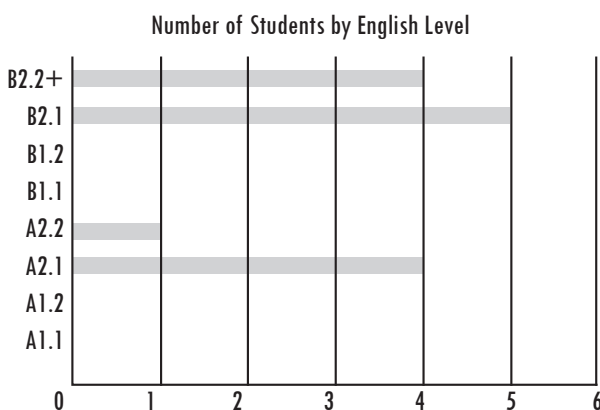


Figure 1 Participants’ English levels

While they were developing their autonomous work, they had to build a vocabulary log. The new vocabulary and some specific grammar structures in the readings were written in a different color in order to give a hint to the pre-service teachers about specific language topics they were intended to learn along with the content. At the end of the worksheet or PowerPoint presentation, there were questions about the meaning of the new vocabulary and grammar structures they were learning, as well as reflective questions about the topic studied in the guide. Then, when the pre-service teachers came back to class they had already studied the theory of the concepts and reviewed new vocabulary and specific grammar structures.

In the face-to-face class, time was devoted to clarifying concepts, explaining the new vocabulary and grammar structures needed for that class, and doing activities intended to develop high and low order thinking skills. When the pre-service teachers explained their ideas, chunks of communication were given as models on how to express their opinions. An example of the type of activities the pre-service teachers had to work with in class was the following:

What children's age is this activity appropriate for? Explain why:

*"Farm story: the teacher assigns animals to each kid, tells a story and when the kids hear the name of their animal they imitate the sound of their animal."*

## Data analysis

The data were analyzed using version 24 SPSS software. The same test was given to the pre-service teachers before and after the course in order to establish its impact. The test had three parts, one to measure vocabulary learning, another to measure the learning of concepts in English teaching and content teaching to young learners, and the third to measure the pre-service teachers' perceptions about the degree of difficulty of teaching a class in English (FL content or EFL) to preschool children. Once the test was completed,

the first step to evaluate the data was to perform a normality test. The outcome of this test was that none of the data tended to be around a central value, indicating that the data were not "normally distributed" and their graph would not resemble a bell-shaped curve. Hence, non-parametric tests for related samples had to be conducted.

The Wilcoxon Signed Ranks Test was performed to compare the results from the tests performed before and after the course. The Asymptotic Significance test is used because of the small size of  $n$  (in our case is the number of pre-service teachers, 14); it is also two-tailed because the assumptions can be made that the hypothesis will be less than or greater than 0.05. The  $p$ -value is called the "significance level" and represents the probability of mistakenly accepting a null hypothesis. In the tables, the  $p$ -value is presented with the words "Asymp. Sig (2-tailed)". In our experiment, the null hypothesis means that the intervention did not have any effect. Traditionally, a null hypothesis is rejected if the  $p$ -value is lower than 5%, or 0.05. When this value is inferior to 0.05, the null hypothesis is rejected.

The following methodology was applied for the analysis and interpretation (discussion) recommended by the USC Research Guides, Libraries (n. d.): The results section is where you report the findings of your study based upon the methodology [or methodologies] you applied to gather information. The results section should simply state the findings of the research arranged in a logical sequence without bias or interpretation. A section describing results [a.k.a., "findings"] is particularly necessary if your paper includes data generated from your own research.

As for the discussion, its purpose is to interpret and describe the significance of your findings in light of what was already known about the research problem being investigated, and to explain any new understanding or insights about the problem after you've taken the findings into consideration.

The following are the outcomes of the test:

## The effect of the intervention on vocabulary learning

**Table 1** Wilcoxon Signed Ranks Test: pre-study and post-study vocabulary tests

Npar Tests

Wilcoxon Signed Ranks Test

Ranks		N	Mean Rank	Sum of Ranks
Posttest-Pretest	Negative Ranks	1 <sup>a</sup>	4,50	4,50
	Positive Ranks	13 <sup>b</sup>	7,73	100,50
	Ties	0 <sup>c</sup>		
	Total	14		

a. Posttest < Pretest; b. Posttest > Pretest; c. Posttest = Pretest

### Test Statistics<sup>a</sup>

	Posttest-Pretest
Z	-3,023 <sup>b</sup>
Asymp. Sig. (2-tailed)	0,00

a. Wilcoxon Signed Ranks Test; b. Based on negative ranks

Table 1 provides interesting data on the comparison of participants' scores on the vocabulary tests before and after the course. Table 1 shows that 13 out of 14 participants had a higher score in the post-study test than in the pre-study test. Only one participant had a lower vocabulary score in the post-vocabulary test. The Asymptotic Significance test yields a *p*-value of 0.003. Because this value is inferior to 0.05, the null hypothesis is rejected. In other words, the Wilcoxon Signed Ranks Test shows that the intervention developed with the group of 14 pre-service teachers had a statistically significant beneficial effect in terms of vocabulary learning.

## The effect of the intervention on the learning of concepts

Table 2, related to the score in the concepts tests before and after the course, shows that 14 out of 14 participants had a higher score in the post-test than in the pre-test. In this case, the Asymptotic

Significance (two-tailed) value shown in Table 2 is 0.001. This *p*-value is inferior to 0.05, so the null hypothesis is rejected. In this case, too, the Wilcoxon Signed Ranks Test shows that the intervention developed with the group of 14 pre-service teachers had a statistically significant beneficial effect on the pre-service teachers in terms of learning concepts.

**Table 2** Wilcoxon Signed Ranks Test: pre-study and post-study concepts tests

		N	Mean Rank	Sum of Ranks
Concep_Pos- Concep_Pre	Negative Ranks	0 <sup>a</sup>	0,00	0,00
	Positive Ranks	14 <sup>b</sup>	7,50	105,00
	Ties	0 <sup>c</sup>		
	Total	14		

a. Concep\_Pos < Concep\_Pre; b. Concep\_Pos > Concep\_Pre; c. Concep\_Pos = Concep\_Pre

### Test Statistics<sup>a</sup>

	Concep_Pos - Concep_Pre
Z	-3,304 <sup>b</sup>
Asymp. Sig (2-tailed)	0,001

a. Wilcoxon Signed Ranks Test; b. Based on negative ranks

## The effect of the intervention on the pre-service teachers' perceptions

Regarding pre-service teachers' perceptions about the degree of difficulty of teaching EFL and instructional content to young children in a FL, the pre-service teachers were asked 5 questions in which the maximum score (5) meant "very easy" and the minimum score (0) meant "very difficult." A Wilcoxon Signed Ranks Test was also performed to compare the results from the tests performed before and after the intervention. The Wilcoxon test was performed based on the average of the answers of the five questions in both pre- and post-study tests. Table 4, related to the score in the perceptions tests before and after the course, shows that 7 out of 14 participants had a lower score in the post-study test than in the pre-study test, 6 participants' scores in the

post-test were higher than in the pre-test, and the remaining participant had the same score on both tests. The asymptotic significance (two-tailed) value shown in Table 4 is 0.916. This *p*-value is by far superior to 0.05, so the null hypothesis is accepted. In other words, the Wilcoxon Signed Ranks Test shows that the intervention developed with the group of 14 pre-service teachers did not have a statistically significant effect on the pre-service teachers in terms of their perceptions.

All the results from each of the five questions regarding the pre-service teachers' perception showed there was no statistically significant difference, meaning that their perceptions remained basically the same. The participant average in the pre- test was 2.571, and in the post test it was 2.2 as shown in Table 3.

Based on these results, it could be said that, according to the answers of the participants in both (pre- and post-) perceptions tests, it is difficult for them to teach EFL and content in a FL.

## Correlations

Correlations were established between the level of English and each of the three variables under study: vocabulary learning (metalanguage expressions), concept learning, and the pre-service teachers' perceptions about the difficulty of teaching poems, songs and rhymes. The scale used to determine the strength of each of the correlations is as follows:

### Scale of strength of the correlation

- 00-.19 "very weak"
- .20-.39 "weak"
- .40-.59 "moderate"
- .60-.79 "strong"
- .80-1.0 "very strong"

As we did when a non-parametric test was chosen to compare the scores in both the pre- and the post-study tests, in this case we applied the same criteria (these data were not "normally distributed") to choose non-parametric Spearman rank-order correlation, usually denoted by the Greek letter ( $\rho$ ), or as  $r_s$ . The SPSS 24 software uses  $\rho$ .

**Table 3** Perceptions tests average

Pre-perceptions test average							Post-perceptions test average						
Participants	Question 1 5 points	Question 2 5 points	Question 3 5 points	Question 4 5 points	Question 5 5 points	Average	Participants	Question 1 5 points	Question 2 5 points	Question 3 5 points	Question 4 5 points	Question 5 5 points	Average
1	2	2	2	2	2	2	1	2	2	2	2	2	2
2	2	2	4	3	3	2,8	2	5	2	5	3	5	4
3	3	3	4	4	4	3,6	3	3	3	3	3	3	3
4	2	1	4	3	3	2,6	4	4	3	3	2	2	2,8
5	2	1	4	4	4	3	5	2	0	4	3	4	2,6
6	2	3	1	1	1	1,6	6	2	2	1	1	1	1,4
7	2	1	5	5	5	3,6	7	3	1	3	2	2	2,2
8	2	3	0	1	1	1,4	8	3	0	5	4	4	3,2
9	3	0	5	2	1	2,2	9	3	1	5	2	2	2,6
10	0	5	0	2	2	1,8	10	1	3	0	1	3	1,6
11	1	2	4	3	4	2,8	11	2	2	3	3	3	2,6
12	2	4	3	3	3	3	12	2	3	3	2	2	2,4
13	2	0	1	1	1	1	13	3	3	2	2	2	2,4
14	5	3	5	5	5	4,6	14	5	2	5	5	5	4,4
	2,1	2,1	3	2,8	3	2,5714		2,4	2	3	2,1	2,3529	2,2

(0 = very difficult; 5 = very strong)



**Table 4** Wilcoxon Signed Ranks Test: pre-study and post-study perception tests

Wilcoxon Signed Ranks Test

		Ranks		
		N	Mean Rank	Sum of Ranks
Percep_Pos-	Negative Ranks	7 <sup>a</sup>	6,29	44,00
Percep_Pre	Positive Ranks	6 <sup>b</sup>	7,83	47,00
	Ties	1 <sup>c</sup>		
	Total	14		

a. Percep\_Pos < Percep\_Pre; b. Percep\_Pos > Percep\_Pre;  
c. Percep\_Pos=Percep\_Pre

Test Statistics<sup>a</sup>

	Percep_Pos- Percep_Pre
Z	-, 106b
Asymp. Sig (2-tailed)	0,916

a. Wilcoxon Signed Ranks Test; b. Based on negative ranks.

*Correlation between English level and performance in the vocabulary tests*

Table 5 relates to the correlation between the participants' English level and the pre-vocabulary test. The significance value of 0.003 (< 0.05) shows that there is a correlation, and the correlation coefficient of 0.729 means that the correlation in this case is positive and strong.

Table 6 relates to the correlation between the participants' English level and the post-study vocabulary test. The significance value of 0.018 (< 0.05) shows that there is a correlation, and the correlation coefficient of 0.622 means that the correlation in this case is also positive and strong.

*Correlation Between Level of English and Performance in the Concepts Tests*

Table 7 relates to the correlation between the participants' English level and their score in the

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**Table 5** Pre-study vocabulary test

Nonparametric Correlations  
Correlations

			Level_of_English	Grade_in_1Voc_Test
Spearman's rho	Level_of_English	Correlation Coefficient	1,00	0,729**
		Sig. (2-tailed)	,	0,003
		N	14	14
	Grade_in_1Voc_Test	Correlation Coefficient	0,729**	1,000
		Sig. (2-tailed)	0,003	,
		N	14	14

\*\* Correlation is significant at the 0,01 level (2-tailed)

**Table 6** Post-study vocabulary test

Nonparametric Correlations  
Correlations

			Level_of_English	Grade_in_1Voc_Test
Spearman's rho	Level_of_English	Correlation Coefficient	1,00	0,622*
		Sig. (2-tailed)	,	0,018
		N	14	14
	Grade_in_1Voc_Test	Correlation Coefficient	0,622**	1,000
		Sig. (2-tailed)	0,018	,
		N	14	14

\*\* Correlation is significant at the 0,01 level (2-tailed)

pre-study concepts test. The significance value of 0.08 ( $< 0.05$ ) shows that there is a correlation, and the correlation coefficient of 0.633 means that the correlation in this case is positive and strong.

Table 8 relates to the correlation between the participants' English level and the score in the post-study concepts test. The significance value of

0.171 ( $> 0.05$ ) shows that there is no correlation between the two variables.

*Correlation Between Level of English and Performance in the perceptions tests*

Table 9 relates to the correlation between the participants' English level and the score in the

**Table 7** Pre-study concepts test

Nonparametric Correlations				
Correlations				
Spearman's rho	Level_of_English	Correlation Coefficient	Level_of_English	Grade_in_1Voc_Test
		Sig. (2-tailed)	,	0,003
		N	14	14
	Grade_in_1Voc_Test	Correlation Coefficient	0,729**	1,000
		Sig. (2-tailed)	0,003	,
		N	14	14

\*\* Correlation is significant at the 0,01 level (2-tailed)

**Table 8** Post-study concepts test

Nonparametric Correlations				
Correlations				
Spearman's rho	Level_of_English	Correlation Coefficient	Level_of_English	Grade_in_1Voc_Test
		Sig. (2-tailed)	,	0,171
		N	16	16
	Grade_in_1Voc_Test	Correlation Coefficient	0,360	1,000
		Sig. (2-tailed)	0,171	,
		N	16	16

**Table 9** Pre-study perceptions test

Correlations				
Spearman's rho	Level_of_English	Correlation Coefficient	Level_of_English	Grade_in_1Voc_Test
		Sig. (2-tailed)	,	0,434
		N	14	14
	Grade_in_1Voc_Test	Correlation Coefficient	0,227	1,000
		Sig. (2-tailed)	0,434	,
		N	14	14

pre-study perceptions test. The significance value of 0.434 ( $> 0.05$ ) shows that there is no correlation between the two variables.

Table 10 relates to the correlation between the participants' English level and the score in the post-study perceptions test. The significance value of 0.094 ( $> 0.05$ ) shows that there is no correlation between the two variables.

## Discussion

Based on the backdrop above, the objectives and hypotheses that guided this study addressed the following: first, the amount of EFL-teaching-related vocabulary (36 metalanguage expressions) the pre-service teachers learned during the course; second, the concepts they learned about teaching FL content and EFL to young children; third, the perception they had about teaching a FL and content in a FL; and four, the correlations among these factors with the level of English of the pre-service teachers. It is important for pre-service teachers of early childhood education to learn key metalanguage expressions at this point because this course was the first time they learned about approaches and methodologies to teach EFL. Vocabulary such as *ESL*, *EFL* (and their difference), *icebreakers*, *language acquisition*, *approach*, *method*, *strategies*, among others, are key terms that are frequently used in academic articles and theory books that pre-service teachers will be dealing with when learning about how to teach songs, poems and rhymes to young children.

Hypothesis 1—"the intervention will deliver a statistically significant benefit on the pre-service teachers in terms of learning EFL and content in FL teaching-related vocabulary (metalanguage expressions)"—was corroborated by the study, that is, the findings showed that the pre-service teachers were successful at learning vocabulary (metalanguage expressions) during the course. All the pre-service teachers in the group improved their vocabulary in different ways with the exception of only one student. It is clear that, at the very least, the seven-week course helped the pre-service teachers to be able to understand and get acquainted with new EFL topic-related vocabulary that they did not really handle at the beginning of the course. As for hypothesis 4—"there is a positive strong correlation between the pre-service teachers' level of English and their results in the vocabulary (metalanguage expressions) tests," it can be said that the correlation between the pre-service teachers' English proficiency level and their scores in the pre-study vocabulary (metalanguage expressions) test was strong, but in the post-test it was weak. The limited number of words learned throughout the intervention allowed the students with a weaker level of English to catch up with the ones with higher level, despite the fact that the difference in level of language between the two groups remained the same until the end of the course.

A pedagogical process that helps the weaker students has a valuable strength. It seems that the way the in-class and independent work activities were designed and executed helped the teacher scaffold

**Table 10** Post-study perceptions test

Correlations			Level_of_English	Grade_in_1Voc_Test
Spearman's rho	Level_of_English	Correlation Coefficient	1,000	0,094
		Sig. (2-tailed)	,	0,750
		N	14	14
	Grade_in_1Voc_Test	Correlation Coefficient	0,094	1,000
		Sig. (2-tailed)	0,750	,
		N	14	14

the students, a factor that must be present in a CLIL pre-service teacher-training course where the aspects mentioned by Pistorio (2009)—language, theory and methodology—have to be addressed.

In the setting where the intervention took place, having a low level of English is equated to academic risk, as was determined by the students' directorate of the university where this intervention took place (Universidad de La Sabana, 2012). In fact, an interesting finding is presented in this report: early childhood education students who enter the university when they have a level of English below A1 are likely to drop out of school. In the case of our study, 5 out of 14 students were below A2 at the beginning of their academic programs, which shows how the differences between the students in the study go beyond the mere difference in level of English. Hence, the conclusion regarding hypothesis 4 was partially fulfilled. This outcome can be interpreted as the consequence of the fact that the pre-service teachers were successful at learning vocabulary (metalanguage) regardless of their level of English.

On the other hand, the results regarding learning concepts in the pre- and post-study tests showed the intervention was beneficial to all the participants. This means that even the pre-service teachers with low English proficiency levels learned concepts up to the point where they approached those with higher English levels. This outcome is coherent with hypothesis 2—"the intervention will deliver a statistically significant benefit to the pre-service teachers in terms of learning concepts about teaching EFL and contents in FL"—which meant the intervention benefitted all the pre-service teachers in terms of learning concepts.

One question that arises is about the retention of the learning achieved in this course, whether this short-term learning can turn into long-term. To provide an answer to this question, we think it

can become long-term because the students had repeated exposure to the new words and chunks, a factor that guarantees long-term retention (Nation, 1990; Rott, 1999, and Thornbury, 2004, among others).

In the same vein, hypothesis 5—"there is a positive strong correlation between the level of English of the pre-service teachers and their results in the concepts test"—was also partially fulfilled because it was fully corroborated in the pre-study concept test but with no correlation between the pre-service teachers' level of English and their scores in the post-study concepts test. In summary, the impact of the level of English of the students on the results in the concept test faded as a result of the intervention.

As for hypothesis 3—"the course will deliver a statistically significant benefit on the pre-service teachers' perceptions about the teaching of songs, poems and rhymes in English to young children"—the findings from the Wilcoxon-ranked test show that the difference in perceptions of all the pre-service teachers in the pre- and the post-study tests is not statistically significant, meaning that the pre-service teachers' perceptions about the degree of difficulty remained about the same throughout the intervention, and the participants' continued to perceive that teaching poems, songs and rhymes in English was difficult. Since the students did not have a teaching practice, this perception remains limited and cannot be triangulated with objective outcomes about the pre-service teachers' in-class performance. Also, such a short experience in students who had not received training previously could have easily been negative because of the level of difficulty students found; however, the intervention did not deepen this perception. From this situation, it can be inferred that, in order to improve their confidence and other perceptions, more training, including teaching sessions, is needed in order to instill the three aspects highlighted by Pistorio (2009)—language, theory and methodology—in the students.



Hypothesis 6—“there is a strong, positive correlation between the pre-service teachers’ level of English and their results on the perception tests”—. This hypothesis was rejected because no correlation was found in either test.

One factor to be considered is the type of primary and secondary schools the participants attended prior to entering university studies. The pre-service teachers were in their third semester and had different English levels at that point of the study. This disparity is due to the type of school the pre-service teachers attended before coming to the university because a higher level of English demonstrates that participants graduated from bilingual or intensive English schools, most of which are private. According to the Instituto Colombiano para la Educación Superior (ICFES) (n. d.), on the list of the 300 highest-scoring schools on the English test given to all schools in the country in 2015, there were only 2 public schools. In Colombia, attending a private school is associated with a higher socioeconomic level, and it has a correlation with better academic performance, as found by many studies such as Dixon, Zhao, Quiroz & Shin (2012); Dixon, Wu & Daraghme (2012); Buac, Gross & Kaushanskaya (2014); Babuder & Kavkler (2014); Babikkoim & Abdul Razak (2014), among many others. Furthermore, the same correlation has been found between low socioeconomic level and low performance in the test taken by all university graduates at the end of university studies as found by López & González (2016).

### Conclusions and pedagogical implications

The exploratory, quasi-experimental, quantitative study presented here explored the implementation of a CLIL-oriented methodology in a course using the teaching of songs, poems and rhymes in English to young children as an exercise to assess pre-service teachers’ skills. Pre- and post-study tests were given to the pre-service teachers in order to assess the impact of the course based on three variables: learning vocabulary (metalanguage) related to EFL teaching, concept learning, and perceptions of the

pre-service teachers about the degree of difficulty in teaching songs, poems and rhymes to young children. The subjects of the study were a group of 14 childhood education pre-service teachers who were in their third semester at a middle-sized private university located in the suburbs of Bogotá, Colombia.

Wilcoxon-ranked tests were applied to establish the impact of the methodology on the aforementioned variables, and a Spearman’s rho correlation test was applied to assess the relationship between the impact of the course on the three variables mentioned and the level of English of the pre-service teachers.

As a conclusion, it can be said that the study presented in this article was positive both for the pre-service teachers and for the teacher. Regarding the pre-service teachers, they became aware of their capacity to teach in bilingual settings and were able to learn topic-related vocabulary and concepts about EFL, despite the fact that, for some pre-service teachers, the teaching of instructional content in English to young learners was perceived as daunting. In addition, they were aware of these achievements, a crucial factor that will motivate them to become CLIL teachers despite the fact that some of them think it is a difficult endeavor. As for the teacher of the course, it was a valuable experience because she gained insights into the possibility of developing classes under the CLIL approach and acquired experience in creating methodologies intended to put into practice the simultaneous teaching of both content and a FL. Nevertheless, this study only shows the beginning of the work that needs to be done to adapt the CLIL approach to pre-service teachers. One of the insights that can be extracted from this experience is that it is necessary for pre-service teachers to be embedded in the CLIL approach so that they can gain experience on its application so that they can incorporate it into their own wealth of experience. On the other hand, it is important to emphasize the development of linguistic competences given the fact that these pre-service teachers were still trying to learn and use English

in order to develop the competences required to teach in a FL. Another insight that emerges from this study is the need to carefully plan the aims for each of the components (four Cs) of a CLIL approach and the implications in the curriculum that this type of planning would imply. Finally, specific instruments should be created to make the learning outcomes evidence-based as well as based on the aims established during planning. In addition, this exploratory study showed that this kind of training can be developed on a regular basis in the institution where it was performed with the resources already available.

At the same time, it is necessary to be aware that, as was stated in the theoretical framework, it is so complex to develop the needed competences in CLIL pre-service teachers that their development should begin at the undergraduate level. Undoubtedly, pre-service teachers need more practice to get acquainted with the CLIL approach. These results are in line with Biçaku's (2011) statement in the sense that it is more fruitful to start the process at university where pre-service teachers are beginning their training. The need to cover the three aspects mentioned by Pistorio (2009) as the aspects a CLIL teacher-training program should cover—language-based, theoretical, and methodological competences—is a process that takes time before teachers can feel at ease meeting the demands of being good CLIL teachers.

Finally, regarding the influence of the pre-service teachers' level of English, Figure 1 shows interesting findings. As stated by Coyle et al. (2010), CLIL teachers should have at least a B2 level in the target language. The reason some of the participants with a lower language level outperformed those with a higher level in this study in terms of vocabulary learning could be attributed to the fact that those with a lower level had more to learn than the others, and they did. However, in the case of perceptions, the outcomes were unexpected. It bears asking why the pre-service teachers with a higher level of English did not

outperform the ones with a lower level in terms of perceptions about the degree of difficulty of teaching English and content to young learners. It seems that when the children have a high level of English (B1 or above), it is necessary for the teachers to have a high level too, but when the students have a low level, as in the case of young children, the low level of English of the teachers (A2 or below) does not seem to pose a threat to their classroom performance. Therefore, those pre-service teachers who had a low level of English did not perceive it as an obstacle to be good CLIL teachers. This point is relevant in the Colombian context where schools struggle to recruit teachers with a high level of English. One of the conclusions that could be drawn here is that schools in this situation, especially for the pre-school years, could hire good teachers whose EFL level is not B2 yet and work on improving their level of language while they are employed.

From the perspective of universities that intend to prepare early childhood education pre-service teachers, this finding is significant. Having all pre-service teachers in the classroom with the same or at least similar level of FL would be ideal, but it is difficult to attain in the Colombian context. CLIL instructors of pre-service teachers have to learn to handle this situation, which sheds light on the needs universities have to deploy actions intended to address the special needs of some pre-service teachers, those resulting from their socioeconomic level, personal and academic characteristics, and family background, in addition to the institutional factor, meaning both the environment they were involved in during their secondary school studies and the one that they are facing during their undergraduate studies.

Finally, as for the contribution of this study to the *Colombia Bilingüe* program, it can be said that it sheds light on some aspects such as the need to start the training of teachers for CLIL contexts starting at the university level. Also, and more importantly, any pre-service teacher training

program cannot overlook the at-risk situation in which the majority of Colombian pre-service teachers are embedded, which makes it necessary to develop creative strategies to help these individuals overcome this situation and become a solid support for this program.

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