

MA REPORT
IMPLEMENTATION AND EVALUATION OF THE IMPACT OF CLIL APPROACH IN A
PUBLIC HIGH SCHOOL

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1. Introduction

Pedro Antonio Molina is a public high school located southeast of Santiago de Cali, Colombia. It was founded in 1977 as the first public technical-industrial school in Santiago de Cali. It offers five industrial-technical fields: mechanics, systems, electricity and electronics, chemistry, and drawing. IETI PAM, as it is known by the academic community, has eight branches located in the commune 6 of the city. This research took place in the morning session of the main branch, which is located in the San Luis neighborhood. Students live in 1 and 2 socio-economic stratum neighborhoods that are located around the school. In the main branch there were 598 students who were divided into 15 groups from 7th to 11th grade. Those students were taught by 22 teachers from academic and technical fields. In this study, two groups participated, out of three of 11th grade. The control group was composed by 19 students (10 males and 9 females) who started working with me from 10th grade; the experimental group was composed by 22 students (8 males and 14 females) who worked with me from 9th grade and to whom I was their homeroom teacher. Both groups shared some characteristics: they were heterogeneous in their English proficiency level, most of them were in A1 and A2 level, but there were some others who were in B1; they had four hours of English instructions per week; and most of the students in both groups were really responsible with assignments proposed by the teachers.

In most of the English teachers' meetings at IETI PAM there were always two highlighted aspects that teachers considered important to be addressed: on the one hand, it was notorious there were many students that did not show any interest in English instruction. On the other hand, there was not any connection between academic and technical subjects in the institution, even when the technical subject is considered an important part of the school's structure. Establishing a link

between academic and technical subjects is the opportunity to incorporate one of the main aspects of the institution (technical area), to try a different approach to English teaching practice, and to identify what the most accurate approach and methodology are for the school and students' context.

Implementation and evaluation of the impact of Content and Language Integrated Learning (CLIL) approach in a public high school is an quasi-experimental research with a pretest-posttest control-group design that mainly pretends to identify what impact CLIL approach has in students' attitude toward English instruction in a non-bilingual public institution. This research aims to answer the question: Does CLIL approach have any influence on students' attitude toward the English learning process in a technical high school? It represents a challenge to the teacher and researcher because it is the first time CLIL implementation will be documented in a public technical high school in the Colombian context and even, the first time there will be an account about students' voices (Curtis, 2012a) on CLIL implementation in the public sector of Valle del Cauca Department. Considering the lack of previous studies about the theme of this project, it is necessary to accomplish some secondary goals that will allow the researcher to have a clear idea and enough information to have a contextualized conclusion. Those secondary goals are related to: recognizing what factors impact on students' attitudes towards the English class; analyzing if there are different students' attitudes and performance compared to students who work through a CLIL approach (experimental group) and those work through a project-based learning lesson (control group); and identifying how CLIL approach can be used to link both the academic and technical areas through English instruction.

Students' motivation is a commonly discussed issue when teachers reflect on instruction effectiveness; in other words, teachers understand the importance of raising motivation within

classrooms, in order to help instruction be more effective in students' learning process. Motivation and language learning enhancement are also concerns of CLIL approach (Coyle, Philip and Marsh, 2010); those aspects are part of the proactive reasons why this approach has been recently implemented. In addition, as a teacher, I have the responsibility to understand what the most accurate approach or method is according to students' context and realities. After looking for background information about CLIL implementation in the Colombian context and having found some studies only in private education institutions (Mariño, 2014; Otálora, 2009), the question "why CLIL implementation is not strongly documented in the context where I have been working?" sprang to my mind. If I try to respond to it, one possible answer could be that teachers are not aware of the CLIL approach yet (Curtis, 2012b; Mariño, 2014; McDougald, 2015; Torres and Cuesta, 2019). Curtis (2012b; p. 6) found the question "How can we apply CLIL in a public school?" was presented in a teacher question-based study he did. Researches have shown CLIL implementation in Colombia has been related to bilingual education and, the concept of "bilingualism" (in Colombian public schools) is something that seems to be happening only in national plans but not in public schools' realities. Public school teachers may consider the implementation of CLIL is filled with limitations directly related to public education's problems such as the quantity of students in a classroom, English language importance given by the institutions and the difficulty to consider a content and language integration within the institution. In fact, those factors mentioned before affect English instruction directly. But, at the same time, they represent a challenge to the teacher, who must understand the different ways to implement a CLIL approach. For instance, if he considers it is not possible to start having an extensive instruction through the vehicular language in a public school (Coyle and al. 2010), he can contemplate, what Coyle et al. (2010) called a "Partial instruction through the vehicular language"

where CLIL can be carried out in limited periods of time and by using communicative strategies as code-switching to reinforce students' learning process.

Finally, in order to determine if CLIL approach really impacts the context of this research, it was necessary to make a comparison between an experimental-group and a control one which kept working with the current teaching method of the institution. The implementation of CLIL in the experimental group did not only represent the use of a different approach in language teaching but the unprecedented link between language teaching and the technical area in the teaching processes in the institution, even more when English language teaching is normally considered to be isolated from the other subjects in school curriculum (Cenoz and Gorter; 2013). The technical area was chosen as the content focus of this study because it is always chosen by students when they sign up in the institution. So, this research also informed how the technical area influenced students' attitude and whether it was worth using this academic field to engage students in the learning of a L2.

2. Objectives

2.1 General Objective

To identify if CLIL has any impact on students' attitude toward the English class.

2.2 Specific Objectives

- To recognize what factors are impacting students' attitude towards the English instruction.
- To implement a CLIL unit that connects both academic and technical areas in a non-bilingual public institution.
- To identify if there is a different students' performance by comparing students who work through a CLIL approach and those who work through a project-based learning lesson.
- To determine if there are different students' attitudes when they work through CLIL approach, in comparison with when they work through project-based methodology.

3. Research Methodology

This project followed a pretest-posttest control-group design that worked on students' attitude toward English class. It aimed to mainly identify students' attitude towards the English learning process. It compared the data collected from both an experimental and a control group before and after the implementation of a CLIL lesson (to the experimental group) and a PBL lesson (to the control group). This study measured some variables like perceptions, attitudes, academic performance, PBL and CLIL approach impact. The analysis of the research tools was addressed both quantitatively and qualitatively in order to identify the differences between the pre-test and post-test stage and the control and experimental group. At the end of the research, there is a report on the differences of the impact between the two groups. In order to achieve the main goal, the following timetable of activities was followed (see Table 1).

Table 1 *Timeline of the Research Activities*

	October	November	December	January	February	March	April	May	June	July	August	September	October	November	December	January	February
Task	2020			2021												2022	
Determine the group of participants				X													
Pre-test phase					X	X											
Planning of the lesson							X										
Intervention								X	X	X							
Post-test phase											X	X					
Data analysis													X	X	X		
Master report writing process																	
Introduction	X	X	X	X	X												
Theoretical framework				X	X												
Research methodology		X	X	X													
Findings and discussion													X	X	X		
Conclusion																X	X
References															X	X	X

3.1. Determination of the Group of Participants that Were Part of the Study

This stage pretended to define both the experimental and the control group and to identify the participants in the research. First, the teacher had to decide which of the three eleventh grade groups were going to participate in the research. The English teacher took into consideration students' responsibility in the previous years in order to select the two groups of participants. Then, he identified which of the two groups had the average lowest English proficiency in order to take it as the experimental group. One of the biggest challenges of the CLIL implementation was the groups' language proficiency because it is usually implemented in contexts where students have an intermediate and high English proficiency level. So, it was more relevant to work with the group with the lowest level of English in order to determine if CLIL approach could really be used in the school and in the public-school contexts.

Second, the teacher asked for informed consent by the students' tutors of the two selected groups and the technical teacher who taught them. The teacher shared a document with the information about the study in which students' tutors authorized the use of data collected in the classes, students' productions, interviews and surveys. So, the students whose tutors signed the informed consent were part of the research. Then, it was needed to identify the teachers of those students who had decided to participate. All the eleven technical field teachers who were asked for the informed consents accepted to be part of the research.

3.2. Pre-test and Post-test Phase

In the pre-test and post-test phase the purpose was to apply different tools to gather information about variables of the research. In the pre-test phase it was necessary to conduct a survey to better decide the CLIL lesson topic. The English teacher proposed a list of five possible

topics and asked the students to complete a survey in which they had to select the ones they would like to work on. “Climate change” was the option with most of the answers because 16 out of the 22 students of the experimental group chose it as one of their options.

In addition, in both phases the teacher applied a survey by Dörnyei’s framework of L2 motivation (as cited in Dörnyei and Ushioda, 2011). It was used to gather information about students' subjective information on students' academic background and on how motivated they considered they were in the English language learning. It was applied to both groups, the experimental and the control one. Both phases also included a structured interview. Students answered some questions about the English learning process, feelings, limitations, expectations, etc. It was applied to all the students in each group. Finally, an academic **exam** was applied to all students. In the pre-test it was used as a diagnostic test and in the post-test it was presented as the final test that was used as a tool to assess students’ academic progression. Students answered the same exam in both phases without being aware the same diagnostic test was going to be used as the final test. The test contained some of the contents worked in the previous school year and some of what was planned to be studied in the intervention phase.

3.3. Planning of the Lessons and Intervention

This stage was carried out by taking into account the information gathered in the pre-test phase. The school had been implementing a project-based methodology since the previous school year. As a consequence, both groups had been exposed to a PBL project called “Family Economy and Its Impact on Human Development”. However, in the intervention phase the experimental started working based on a CLIL lesson about climate change and the control group kept working on the PBL project. English was used as a means of instruction in the CLIL lesson (Experimental

group), the lesson had the objective of promoting the use of the target language by the teacher and the students. The control group was also mainly exposed to the target language but students' L1 was also used as a means of instruction.

The general objective of the experimental group lesson plan was that students were able to propose a strategy that helped to reduce climate change and improve the economy in school. The final product of the lesson was a group proposal to reduce the climate change contribution of the school. Students used the school's blueprint to identify some of the aspects worked in the lesson such as places where it produced the biggest quantity of greenhouse gases. In order to achieve the main objective, students first had to be able to:

- Explain how gas emissions impact climate change.
- Provide ideas about how to use less energy.
- Explain the list of tools needed to generate electricity without gas emissions.
- Identify in the school's footprint where the greenhouse emissions are.

The CLIL lesson was composed of 6 classes based on the 4C's framework presented by Coyle et al (2010). So, they included details about the content, communication, culture, and cognition of every single class. Regarding content, students worked on climate change and its impact on our lives, greenhouse gases, the carbon footprint, use and production of electricity, and recycling. Communication aspects were divided into language of learning, language for learning, and language through learning. The first included information about the key vocabulary students must work on, the grammatical progression (simple present, simple past, and simple future tense), and language for expression of opinions. Language for learning included answering information based on other's information, writing a proposal to reduce climate change and improve the

economy, and language to express opinions. Language through learning included the use of a dictionary and using feedback to improve.

The main objective of the control group's project was that students could identify how an appropriate use of public services (aqueduct, sewage, electricity and natural gas) was a strategy to minimize family expenses. This project connected some of the academic areas such as Mathematics, Language (Spanish), Science, Social Studies and English. At the end of the project students had to present an infographic by answering the question: How did the appropriate use of natural resources impact the expenses-income relation in your family? The English classes contributed to the project by helping students to understand the importance of preserving the natural resources, proposing debates where students expressed their ideas, and by working on the English paragraph structure.

There were five classes of the PBL project which were part of the data collection and analysis of this research. Those classes included vocabulary about family economy and some grammatical aspects like simple present, simple past and simple future.

There was a teacher's diary for both groups in which the teacher noted students' attitudes and interaction during the class. The teacher took some notes after every class with both groups. He identified students' behaviors in the different activities of the classes and noted some of the comments he considered relevant based on the different variables of the research.

3.4. Data Analysis

After having collected the data from the different research tools, the analysis was divided into three categories: students' perceptions towards the English learning process, students' attitudes when they were in the English classes, and students' academic performance. Those

categories were aligned with the specific objectives of this research and were useful to achieve the main objective. The following tools were considered in order to identify, gather, organize and better understand relevant information closely related to the main objective of the research:

1. **Survey about English class perception.** This was a structured questionnaire that contains open and closed questions. It was divided into two main sections. First, students' background information where they gave information about their previous experiences in learning English. Second, some statements which students had to react about by using a five-level Likert's scale. Students showed the degree of agreement by answering those statements with one of the following options: strongly disagree, disagree, neutral (Neither agree nor disagree), agree, and strongly agree. Students' answers were analyzed both quantitatively in order to better compare the differences between the stages and qualitatively in order to try to compare some of the variables of the research.
2. **Structured interview.** This instrument helped the researcher to understand specific information about the English learning process in the research context. The interviewer asked five questions to the students about their motivation, the importance for them to learn English, their English level to face their lessons, their degree of responsibility in the English learning process, the class activities they liked the most, and the English class activities they considered to be the most difficult. Students' answers in the interviews were mainly analyzed in a qualitative manner. Even though four out of the five questions were closed (students answered "yes", "no", or sometimes), they were asked to provide an explanation of their answers which allowed the researcher to have a lot of information about the specific details that could influence students' attitudes.

3. **Academic exam.** It was a tool used to identify students' knowledge and improvement about academic aspects worked before and through the English instruction. It aimed to tell how CLIL impacts on students' academic performance in comparison to the methodology used in the institution by using a quantitative analysis of the results in each part of the test.

The academic exam was divided into the four language skills. Students answered some questions where they had to show their listening, reading comprehension, speaking, and writing abilities. On the one hand, in the listening and reading comprehension students had to identify literal information and answer multiple-option questions. The listening comprehension part was composed of 5 questions, which students answered based on the first 3 minutes of a documentary. In the reading comprehension part, they answered 4 questions after reading a text about natural resources. On the other hand, the teacher created two rubrics based on the Common European Framework of Reference for Languages (Council of Europe, 2001) to evaluate students' speaking and writing productions. The rubrics considered the language descriptors from A- to B-2 because of the heterogeneity of students' language proficiency level that was evidenced in students' responses to the academic tests in both phases. Students first orally answered two questions about their technical field class. Then, they wrote the answer to one of five questions the teacher proposed. The questions were related to the intervention planning of both the experimental and control groups.

4. **Teacher's diary.** It contains the teacher's reflection on how the teaching and learning processes were carried out. It helped the researcher to critically understand what kind of activities changed or improved class situations. It reported the different activities, students' attitudes and interactions in class development. It helped the researcher to reflect on the impact of the two lessons (the PBL and the CLIL) in the group of participants. The diary was analyzed qualitatively in order to identify what aspects of the L2 motivation theory were evidenced in the classes and how students' interactions changed in the different activities used by the teacher.

Finally, during the data collection there was a good participation and positive attitudes from the participants of the study. All technical field teachers who were asked to participate in the research accepted the invitation and demonstrated a good attitude towards the research. In order to better understand how those technical subjects worked, some of them invited the researcher to visit their workshops and classrooms to show some tools students used in their classes and some of the products they were able to produce. In addition, all students who participated in the research had a good disposition to answer all the questions in the interviews and surveys, despite those tools being applied in their free time. Although the initial purpose was to include all students in the research there were some of them who did not submit the informed consent because their tutors did not authorize or because they just forgot to submit the document. In other words, the only problem in data collection was gathering the informed consents of the students and it was addressed by including in the research only those students who did send that document as requested by the researcher.

4. Theoretical Framework

Content and Language Integrated Learning is an approach to teach English as a non-native language that has started to be implemented and it is highly accepted around the world. In the Colombian context, CLIL has been associated with private universities and private or bilingual schools; CLIL application in public schools has not been documented as in the contexts mentioned above. Therefore, in order to identify the impact of CLIL approach in students' attitude towards English instruction in a public high school, it is necessary to better understand all the important elements around CLIL approach implementation in a public Colombian context. That is the reason why the theoretical framework of this research is composed of three main elements: Content and Language Integrated Learning theory (CLIL), experiences of English teaching through CLIL approach, and the concept of motivation.

4.1. Content and Language Integrated Learning Theory

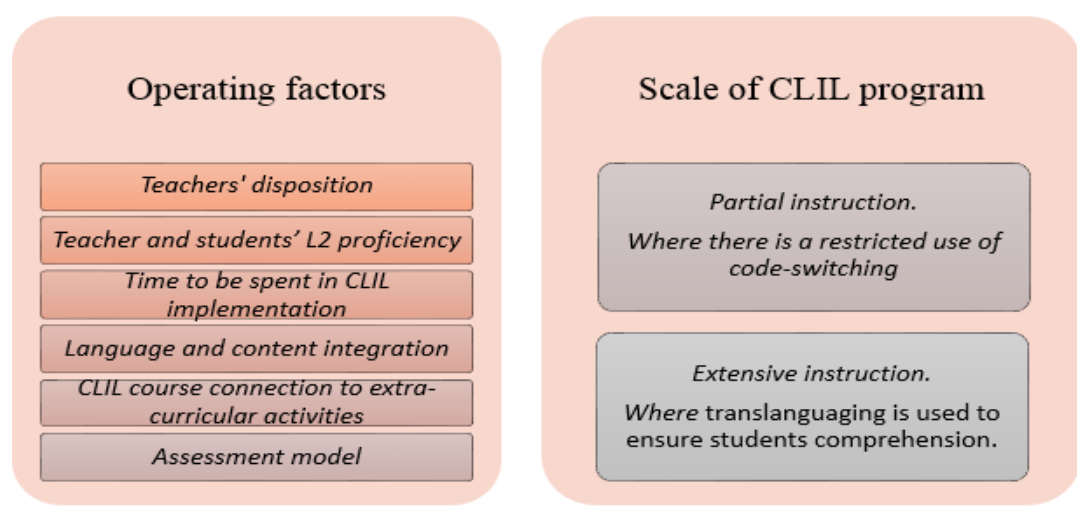
According to Coyle et al. (2010) CLIL (Content and Language Integrated Learning) is considered a new approach for subject education that aims, on the one hand, to improve students' motivation and learning results; on the other hand, involve them in their learning process by focusing in both content subject and language. The teaching process in CLIL uses languages as a means to learn; in other words, it is a way of teaching through but in an additional language.

In this the first chapter of the book *CLIL: Content and Language Integrated Learning*, Coyle et al. (2010) explained the difference between the approach they were standing for and CLT (Communicative Language Teaching) by pointing out CLT is a more holistic approach that has failed in providing high levels of authenticity and CLT practices. Furthermore, this text presented two major reasons why some specific regions are showing interest in CLIL: reactive and proactive.

The first aspect refers to those countries who had to implement changes in their language policies in order to guarantee equality in the access to education because they have many languages and by using only one of them, automatically excludes the other part of the population. The proactive reasons include the need to find solutions to improve language learning, educational, social and personal processes.

Authors highlighted CLIL is important in the teaching practices because it: prepares students for future studies or working life, contributes in learner's cognitive development, enhances students' motivation towards the learning process and challenging teacher to get high authenticity level in the classroom (e.g. by letting students to experience real-life situations). Coyle et al. (2010) considered there is not a single model to implement this approach. CLIL implementation may be based on many different models which depend on the teaching aims and the capacity educational context has to implement it.

Figure 1 *Aspects to Take into Account in CLIL Planning according to Coyle et al. (2010)*



According to those authors, schools need to take into consideration both *operating factors* and the *scale of the CLIL program*. On the one hand, operating factors refer to teacher's disposition

(whether they work as a team or individually), teacher and students' target language proficiency, the amount of time to be used in the implementation of the approach, how language and content are integrated, linking of the CLIL course to extra-curricular activities, and assessment model used in the process.

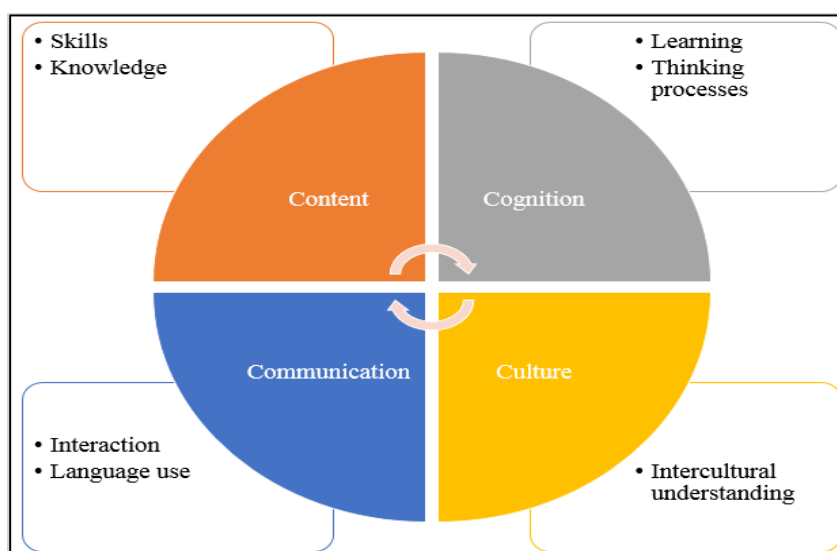
On the other hand, the scale of the CLIL program refers to how content and languages – L1 and target – are used. The authors highlighted two types of CLIL instruction: extensive instruction through the vehicular language and partial instruction through the vehicular language. Both of them have a focus on content, language and cognition but there are some differences between them. The former includes a greater use of target language with restricted use of code switching, and CLIL approach is usually used in 50 per cent or more of the curriculum; the latter involves systematic use of code-switching which is planned and gives a specific purpose to each language (translanguaging), it is usually planned for limited periods of time and it also helps to ensure learners understand key terms in both L1 and vehicular languages.

Figure 2 *Curricular Models of CLIL Implementation according to Coyle et al. (2010)*

Dual- school education	Bilingual education	Interdisciplinary module approach	Language-based projects	Specific domain vocational
<ul style="list-style-type: none"> • Input in L1 and L2. • Use of new media. • Use of problem-solving assignments. 	<ul style="list-style-type: none"> • L2 instruction for a long-term period. • International certifications 	<ul style="list-style-type: none"> • Teachers from different areas participate. • CLIL language is used due to the international dimension of the lesson. 	<ul style="list-style-type: none"> • Uses some aspects of communicative language teaching. • Includes some content-based teaching features. 	<ul style="list-style-type: none"> • Focuses on preparing students for working. • Practice is the center of attention.

They also presented some curricular models of CLIL implementation that have been experienced in different education institutions. In the case of secondary education, they presented some models that were useful to determine how CLIL could be used in the specific context of this research: *dual-school education*, where students receive input from both L1 and L2 and content teachers take part in problem-solving tasks where new media is used. *Bilingual education* that is implemented for a number of years and it usually includes international certification or assessment. *Interdisciplinary module approach* which includes the participation of teachers from different areas and CLIL language is included because the module has an international dimension. *Language-based projects*, in which CLIL language is the basis and which includes some aspects of both content-based and communicative language teaching. *Specific domain vocational CLIL* that aims to help students to be able to complete specific task-based functions, it focusses on practice by connecting language and content and it tries to help students to be ready for their working life.

Figure 3 4C's framework described in Coyle et al. (2010).



CLIL approach is built on a 4C's framework basis. Where content, cognition, communication and culture are connected in order to work for a global goal. In CLIL planning, teachers must clearly identify how each C will be used in the teaching practices. Those four components were explained by Coyle et al. (2010) as follows:

Content. It is the CLIL theme. It takes into account the skills and knowledge that are expected to be learned by the students. It also identifies learning progression and identifies what needs to be worked in order to develop the global goal. Content is determined on learning context and it could also incorporate extracurricular opportunities. It must help students to be cognitively challenged and engaged and to be willing to work collaboratively in problem solving activities that help them to develop life skills.

Cognition. It is information about learning and thinking processes. In CLIL planning teachers must identify how cognitive processes are carried out by students. Cognition allows teachers to plan activities that work on both thinking processes levels: lower-order (remembering, understanding and applying) and higher-order processes (analyzing, evaluating and creating).

Communication. It gives an account of how interaction works in CLIL implementation, how language is used and what language aspects are expected to be learned by students. It considers language to be seen as a tool to communicate and diversity as a part of language development. According to the authors, even though in CLIL implementation there are tasks which involve problematic forms, the content learned through CLIL language is not just based on grammatical form. The CLIL process includes both focus on meaning and focus on form. Finally, based on the assumption CLIL is context based, grammatical progression in a CLIL process may be different than in a common L2 teaching process. That progression is based on what students need to understand topics related to the subject theme (content).

Culture. It defines how intercultural understanding is worked in the lesson. It understands the relationship between language and culture where language is the means to express the way we understand the word (culture). The authors highlighted the importance of not just letting students learn about different cultures but letting them experience those cultures by interacting with peers and people from different contexts. It includes working on aspects like identity and citizenship in different cultures.

CLIL implementation requires teachers to identify how and why content and language can be integrated. Teachers must be aware of the relationship between language and cognitive levels learners have and what teachers look for. In other words, global goals must ensure all elements of the 4C's framework can be included by keeping the balance between knowledge, thinking processes, language and pluricultural understanding.

4.2. English Teaching through CLIL

Colombia is a country whose official language is Spanish and where it is mandatory to provide an English instruction from primary school to high school. However, Colombia's public education system does not ensure all students receive English instruction, especially in primary school where there are still many schools, which do not have any English specialists who teach English language. Besides, the fact that the CLIL approach is documented in many private schools adds an element into the discussion about the gaps between private and public education in Colombia. In order to implement a CLIL approach in a context with the characteristics mentioned before, it is necessary to reflect on how people in the teaching-learning process see CLIL implementation and how this process has been carried out. Consequently, this part of the literature review is composed of three main elements: teachers' perceptions on CLIL English instruction, students' perceptions on CLIL, and CLIL application in Colombia.

4.2.1. Teachers' Perceptions on CLIL English Instruction

Curtis (2012a), Curtis (2012b), McDougald (2015), Mcdougald (2016), Osorio et. al (2017), and Torres and Cuesta (2019) have done some research about teachers' perceptions on English instruction in Colombian context. Those studies have revealed many important reasons for CLIL application in Colombia and the differences between those two realities (private and public education).

Curtis (2012a & 2012b) presented a two-part-paper research on teachers' perception about CLIL. The first part aimed to make a literature review about teachers' voices. The article highlighted the difference between teachers' voice and teachers' voices, by pointing out the first is a result of "romanticizing" and generalizing those voices because there is never only one teachers' voice about any topic, the voices are individual and according to variables such as time and place. In addition, this paper drew attention to the fact that there are few researches about CLIL with a focus on teacher's voices but there is also a shift in education research from reflecting on teacher's voices to inquiring on students' voices, something that demonstrates a tendency towards a more student-centered teaching.

In the second part of that research, Curtis (2012b) analyzed Colombian teachers' questions about CLIL. This paper took its data from two groups of teachers that were studying a MA TESOL Program where they were asked to write some questions about CLIL before the presentation of this approach. The author classified those 85 questions according to what they referred to and he determined teachers' questions were related to:

- **CLIL in the Colombian context.** This was the group with more quantity of questions and according to the author, that kind of questions indicated that there was a teachers' concern

about the feasibility of CLIL in their own contexts. Teachers expressed their concern about how useful CLIL could be in a context with some specific characteristics like large groups, limited resources and lack of collaborative work between teachers.

- **Implementation of CLIL.** This was the second group with more questions. Questions of this group were on how to implement CLIL. Teachers inquired about the activities, materials and tasks to use in the language and content integrated instruction and some others asked about the relationship between CLIL and task-based language teaching.
- **Fundamental concepts of CLIL.** Those questions showed teachers still have doubts about some elemental aspects of CLIL. Some teachers asked about the meaning, principles, advantages, and disadvantages of CLIL. They showed they were not too familiar with this approach or even that they did not know what it is about.

Finally, one of the questions presented in the research was useful for the MA's research: "How can we apply CLIL in a public school?" because it is related to one of the specific objectives of this research, and answering it represents a challenge taking into account the context of public schools in Colombia.

McDougald (2015) presented a survey-based research report about teachers' attitudes, perceptions and experiences with Content and Language Integrated Learning approach. The information was taken from 140 surveyed teachers from 15 major cities in Colombia who taught English or content through the English language in public and private primary, high schools and higher education institutions. The author expressed the necessity to raise knowledge about CLIL not only in teachers but also in administrators and stakeholders who seemed to have a lack of knowledge in regard to the implementation of CLIL. The questionnaire inquired about the attitudes and experiences in CLIL. The survey demonstrated teachers did not have enough knowledge about

CLIL. Half of them had had positive experiences in teaching content and language simultaneously and almost all of them considered CLIL as a good approach to put into practice. In his conclusions, the author highlighted CLIL requires the adaptation, adjustment or creation of the materials used in their lessons.

McDougald (2016) presented some of the research that has been done concerning CLIL implementation. He argued that there is a need to innovate and implement new approaches like CLIL that have shown to improve learners' motivation toward learning of L2 and this can lead to positive changes in the language classroom. McDougald (2016) presents four key aspects that represent challenges in the implementation of CLIL: "(1) opposition to language teaching by subject teachers, (2) experimental CLIL programs, (3) SLA skills needed by subject content teachers, and (4) lack of CLIL teacher-training programs." (p. 255). The author considered the opposition to CLIL can come even from language teachers who might consider subject teachers are "invading" their language instruction; in addition, teachers are focused on individual subject goals that do not let them consider the establishment of general ones. Concerning CLIL experimental programs, he affirmed CLIL implementation has been reported in 175 Colombian bilingual schools. Relating to the lack of teacher-training programs, the author referred to many teaching programs where foreign language did not have enough attention and students' oral skills may have had to be sacrificed "to comply with the different methodologies" (McDougald, 2016, p. 257) and there were not sufficient teaching programs that prepare teachers to accomplish CLIL implementation necessities. Finally, he presented some studies on implementation of CLIL that have shown positive results. As a conclusion, the articles highlighted the importance of teachers' collaborative role and stakeholders' descriptive role in the discussion about CLIL implementation.

The huge difference in the reports on CLIL implementation in Colombia called attention to the topic of this research. While Mcdougald (2016: p. 256) presented CLIL implementation in a great number of bilingual schools, there is too little evidence of CLIL implementation in non-bilingual schools and public institutions. This can evidence the difference in learning opportunities of public school learners in comparison to private students in Colombia.

Osorio et al (2017) conducted a descriptive-explanatory study that collected data from a structured questionnaire answered by 30 teachers who were implementing CLIL in bilingual high schools in Colombia. It had as its main objective to evaluate to what extent CLIL implementation was convenient in Colombia. The paper highlighted the need of projecting bilingualism in all levels of education in Colombia by citing OCDE (2016). It presented the results of a revision of national policies of education. It also argued CLIL has shown to be useful in bilingual contexts, especially in Europe. The questionnaire used to collect data was composed of 10 multiple-option questions about teachers' perceptions towards the four following aspects: the implementation of CLIL, the support high schools were giving to help the implementation of CLIL, the support received from the government and the projection of CLIL in Colombia. This research finally stated CLIL is a trusted approach taking into account the broad implementation in Europe; teachers considered it was viable to keep looking for ways to improve CLIL implementation since it is useful; and, it is needed the participation of all the participants of the education process in the implementation of new methods.

These questions used in the study can constitute a limitation, even more when there is not a triangulation of data instruments. The structured questionnaire used in Osorio et al (2017) could have limited data collection thus it did not allow to report specific information about the reasons why participants exposed a certain position. The perception of a positive support by the Colombian

government in CLIL implementation is an important aspect that calls the attention, taking into consideration that Mcdougald (2015) argued that in public and private school's teachers considered administrators and stakeholders seem to have a lack of knowledge in regard to the implementation of CLIL. It is necessary to remark that Osorio et al (2017) asked private bilingual teachers while public school teacher's voices were incorporated in Mcdougald (2015). The previous difference lets talk about this: have public schools received enough support from the Colombian government as teachers from bilingual schools manifested they have? To what extent do both public and private institutions have the same opportunities?

Torres and Cuesta (2019) reported an explanatory qualitative study that aimed to identify elements that were influencing in the implementation of CLIL in Colombia context. It started by pointing out the need to reflect about how language policies are being carried out in our country, which showed decision-makers are not sufficiently aware of our context, language needs and need approaches that could be a response to some of those problems. The authors highlighted CLIL as an approach that takes into account culture and situated content in the language teaching practices. The study was done with 6 primary English teachers of 5 private schools in Bogotá, Chía, Tenjo, Facatativá, and Girardot. The conclusion of the study resulted from the triangulation of: interviews that helped to understand teacher's perception about their own practicing in the implementation of new methodologies; web-based questionnaires to gather information about teachers' backgrounds and their knowledge and experiences in CLIL; and field journals to identify teachers' practices during the classes and the planning, design and integration of different elements in their classrooms. After the analysis, the authors found teachers have some complications in understanding CLIL, teachers' focus on textbooks used in the schools and there is a necessity to guide teachers in the process of situating CLIL in their context.

As a conclusion, research on teachers' perceptions of CLIL shows teachers have some doubts about how suitable CLIL is in the Colombian context and about some main aspects of this approach. Even when there are many teachers who have been successful in teaching content and English as an L2 simultaneously, some of them have not become familiar with CLIL approach theory. Mcdougald (2016) presented a possible reason to this problem, as mentioned before, he considered there are missing teaching programs which instruct teachers about CLIL. In addition, teachers' perceptions also highlighted it is needed that all the participants like administrators and stakeholders also understand this approach.

4.2.2. Students' Perceptions on CLIL

Students' perceptions on CLIL have not been thoroughly documented in the Colombian context but it has been analyzed in many studies in Europe. So, it is relevant to mention some authors like Herrán (2015) and Rodríguez (2018) who analyzed students' perceptions in Colombia and Arribas (2016) who did it in the Spanish context.

Herrán (2015) implemented a pretest – posttest qualitative study based on the implementation and analysis of the impact of a CLIL lesson plan in a public school in Bogotá. The purpose of this research was to determine what learning difficulties were experienced by students and to what extent CLIL could improve students' English skills due to some other strategies – like increasing English class' hours per week - had been implemented without any influence in students' language competence. The author implemented a lesson plan related to atmospheric phenomena in an 8th grade English class.

Information was collected by using four kinds of instruments: **students' reflecting diaries** that were written after each class by mentioning the positive and negative aspects of what they

learned and expressing their perception of the instruction. A **teacher's field diary** that collected teacher's teaching strategies, class' purposes, and students' changes during the session. **Two surveys** that were answered by students by using Likert's scale: an initial one that was about students' perceptions on English instruction and the difficulties they had in English learning, and a second one that asked about what aspects students considered they have improved during the research. And, two **semi-structured interviews** that were similar to the two surveys but they were answered by a small part of the students.

Herrán (2015) identified students considered to have some difficulties mainly in pronunciation and writing skills. They also considered understanding vocabulary used by the teacher and reading comprehension were some other difficulties they had. After the studies, the author concluded students' perception towards CLIL classes was better than they had about EFL classes. He also stated the implementation of CLIL was more useful than EFL in the process of improving students' vocabulary and reading comprehension skills. Finally, he concluded CLIL can help to improve students' English learning difficulties in the institution where the research was implemented.

Rodríguez (2018) carried out a case study that evaluated the effectiveness of CLIL implementation in a university course about childhood language disorder, that is attended by fifth semester students from the speech therapy program. The research both observed English classes based on CLIL and looked for students' and teacher's perceptions on the implementation of that approach. Consequently, Rodríguez (2018) used class observations and diagnostics before and after the implementation to evaluate how effective CLIL was in both content and language learning, and some interviews with students and the teacher to know their perception towards the course.

After the analysis of the information, Rodríguez (2018) concluded: on the one hand, students acquired new vocabulary through CLIL instruction however there was no evidence of the same improvement in grammar structure learning. On the other hand, CLIL classes generated motivation and a positive perception on the course but students who had the lowest language proficiency had some difficulties in learning some new theories, so they felt English was a barrier to communicate with the teacher.

The author proposed some future plan actions. Three of them can be helpful for this research: firstly, the need to establish a certain English level as a prerequisite to attend the bilingual course. Secondly, to establish programs that allow students to practice English. Finally, to offer training to teachers in order to improve their teaching performance, which is closely related to the proposed by other studies have been mentioned in this document.

Finally, it is important to analyze Arribas (2016), who presented a quantitative dual-perspective study carried out in bilingual school in Spain. This research aimed to obtain information about both motivation of students towards CLIL approach and the impact of the content language approach on students' competence (specifically on students' vocabulary level). The data for the analysis was gathered from a questionnaire and two vocabulary level tests applied to 403 high school students. The study also correlated students' results in vocabulary tests from some of the students of the study with their motivation towards English learning. After the analysis of the data, this study states: Firstly, most of the students (80%) considered CLIL instruction as a not useful experience, speaking and listening were the most positively influenced skills by means of CLIL and students who considered CLIL helped them to improve their language skills also considered there was a positive impact on their lexicons development. Secondly, CLIL's students

showed higher (but statistically not significant) scores in the Vocabulary Language Tests (VLT)-. Finally, motivation is directly proportional to students' result in VLTs.

One of the most important contributions of this text is the assertion about the importance of reporting the hours of students' exposure to CLIL in the research paper because, according to Arribas (2016), this aspect is needed to compare different studies, even more when studies on CLIL differ in many aspects as learner's age, students' L1 and level in the target language. In addition, there are some of the aspects that converge between both studies as: the pioneering characteristic because of the lack of similar reported studies in each specific context (Spain and non-bilingual and public institutions in Colombia) and the analysis of CLIL impact of both students' motivation and language improvement through questionnaires and language test.

Although, there are some differences between the current research and Arribas': firstly, the population in Arribas (2016) is composed of students from 7th – 10th years of compulsory Spain education system, while this took information only from 11th graders of Colombia education system. Secondly, some of the learners in Arriba's study have previous experience in CLIL approach and there is no homogeneity in the quantity of time they were exposed to CLIL; on the other hand, this current study had a homogeneous group regarding students' previous experience in CLIL. Thirdly, while in Arribas (2016) students are admitted to a bilingual school with experience in CLIL approach, this paper took place in a monolingual school where there was no previous experience in CLIL implementation.

After reading Arriba's document, I consider it is more appropriate to better measure the impact of CLIL. It would be better to implement a pre-test to compare whether the results are caused by CLIL or because of other variables.

To sum up, even though Herrán (2015) and Rodríguez (2018) conducted their research in different contexts, they presented similar results related to students' perception towards CLIL implementation: most of the students had a positive perception of that approach. Something that is pertinent to analyze is the fact both studies worked with populations who were not closely related to the CLIL approach, that helped those authors to determine students' perception was based on the research process. On the contrary, Arribas (2016) evaluated CLIL impact based on information by students who had previously experienced that approach, in addition the group of students was not homogenous in CLIL exposure which makes it difficult to understand why most of them considered CLIL instruction as a not useful experience.

Finally, Rodríguez (2018) and Arribas (2016) stated the relationship between language proficiency and motivation. Students' low proficiency level was reflected in their perception towards English instruction because they did not consider English as a means to learn content but as a barrier that affected their subject learning.

4. 3. Concept of Motivation

Identifying how CLIL approach can impact on students' attitudes toward the English instruction is the main goal of this research, that is why it is essential to understand the concept of motivation in educational context and in L2 learning processes. This part of the literature review studies the evolution of this concept in L2 learning context. Furthermore, this section presents a study where students' motivation was analyzed in Colombian context.

4.3.1 Motivation in L2 Learning Process

Motivation is one of the factors L2 teachers must take into account in the teaching process and it is one important element in this research. Guerrero (2015) described three important phases in the evolution of L2 motivation:

- The Social Psychological Period, in which by citing Gardner (2010), Guerrero (2015) explained that students who were motivated were considered to work until the achievement of the goals they had set before; motivation resulted from the interaction with L2 and its culture; and, social context and individuals' attitudes were the basis to understand students' attitudes.
- The Cognitive-Situated Period, in which the focus of motivation concepts lied on individual mental processes.
- The Process-Oriented Period, that focused motivation on individual circumstances and learners' language interest.

About the social dimension of L2 motivation, Dörnyei and Ushioda (2011) presented Gardner's motivation approach main components: integrative motivation, defined as the disposition to learn a L2 and to interact with L2 speaker; and instrumental motivation, considered the pragmatic reasons why a learner wants to learn the L2. He also pointed out the concepts of intrinsic (internal joy of doing an activity) and extrinsic (rewards obtained by teacher).

Dörnyei and Ushioda (2011) also stated Dörnyei (1994) took into consideration Gardner and Clément's theories and his own findings about motivation to present a framework of L2 motivation which included the social, personal and educational dimension of motivation. He proposed L2 motivation could be seen into three levels: language level, learner level, and learning

situation level. Firstly, *language level* which is related to Gardner's integrative and instrumental motivation levels. It includes learners' expectations about future studies in L2 and their predispositions and interests in learning a foreign language and knowing some aspects of L2 culture. Secondly, *learner level* takes into consideration aspects of learners' identity like: their desire of improving, self-confidence, anxiety, past L2 learning experiences and self-efficacy. Finally, the learning *situation level* takes into account the three groups of components:

- **Course-specific motivational components** that are composed by elements related to the course syllabus, materials, method and tasks. It can be related to some factors like interest, relevance, expectancy, and satisfaction.
- **Teacher-specific motivational components** refer to teacher's identity elements and his/her relationship with students. It is composed by two main motives: *affiliative drive* (the desire of students to do well because they want to please the teacher); *teacher's authority type* (whether teacher hesitates students' autonomy by letting them taking some decisions.); *teacher's role in socialization of student motivation* (whether teachers prompt students to increase their motivation by modeling, task presentation and feedback).
- **Group-specific motivational components** are those attached to the dynamic of students' groups. They include: firstly, the degree of commitment to work for a group goal (*goal-orientedness*). Secondly, teacher's regulations that define what is needed for a productive learning process (*norm and reward system*). Thirdly, the relationship between students within a group (*group cohesion*). Finally, the type of *classroom goal structures* which can be *competitive* (students want to be the best because that is a way to get a reward), *cooperative* (students are part of a group and

they are responsible for all their teammates reward), and *individualistic* (students work alone).

For this research it is necessary to take into consideration Dörnyei's framework of L2 motivation because it helps to identify the different factors that can impact students' motivation towards an approach they have never been involved in.

4.3.2 Motivation in L2 Instruction in Colombia

Guerrero (2015) analyzed how the motivation process is evidenced and how it is important in the L2 learning process in a public high school in Pasto (Colombia). The author commented on some aspects related to L2 motivation he identified as the public high school he observed: there were not many opportunities for people from school context to speak English because people from the region did not have enough money to travel to English native countries and there were not a lot of English native speakers. English instruction was characterized by some aspects as: English class had only two hours in a week within the school curriculum and most of the English teachers of the institution were not able to maintain a fluent conversation in English.

Finally, the author argued motivation is an important aspect in the L2 learning process and the teacher has the duty of understanding how to motivate students. However, he stated personal potential is fundamental in this process. Since, there were usually visible students with the same context background but with different proficiency levels or motivation, which shows there are many aspects that need to be taken into account when motivation theories are analyzed.

The previous literature review helps to better understand how CLIL approach can be used to teach English in a non-bilingual and public Colombian school. CLIL implementation in this context requires a well-planned process that leads teachers to impact on students'

attitudes towards English learning by taking into account the following aspects. First, the 4C's framework described by Coyle et al (2010) can be used as both a guide and a reflection tool for the English teacher. It allows identifying and planning carefully how interdisciplinary knowledge (content), progression of thinking level processes (cognition), intercultural awareness (culture), and language use (communication) converge in the English classroom. Second, even though research has shown there are a lot of teachers' doubts about CLIL, studies have demonstrated both students and teachers have a positive perception about the use of CLIL to teach English. Finally, understanding the different aspects that compose motivation in L2' learners can help the teacher to implement strategies to work in favor of this essential aspect in the L2 learning process. In brief, I have listed some of the most relevant aspects that must be taken into account in CLIL planning in order to impact students' motivation.

Besides, literature about CLIL implementation in Colombia shows some gaps between public and private education in Colombia. When Mcdougald (2016) presented the number (175) of Colombian bilingual schools where CLIL was being implemented, he put in evidence the huge difference between private and public education, taking into account bilingualism in Colombia is related to private institutions and there are few reports of CLIL implementation in public settings. In addition, the different assertions by Osorio et al (2017) and Mcdougald (2015) about teachers' perception towards the support by stakeholders show private teachers have a more positive perception than public ones. Having enough information about those contextual aspects help this research to better plan CLIL implementation and avoid having the same limitation previous research had to face. Finally, the previous literature review gives an account of what teaching aspects must be included in the implementation of CLIL approach and what elements reveal whether students are motivated during the L2 class.

5. Finding and Discussion

As I have stated before, the main objective of this study was to evaluate to what extent CLIL approach impacts on students' attitude toward the English class in a public school. This objective was addressed by different research tools that provided some information about class interventions, students' academic background, motivation towards learning English, and their academic performance. Three of the four research tools (the surveys, interviews and academic exams) were applied to a control and an experimental group before and after the implementation of a CLIL lesson to the experimental group and a PBL lesson to the control one. Therefore, this section of the paper presents and compares the information collected from those two groups in the pre and post stages of the research. In addition, the findings are presented according to the specific objectives of this study where there are three aspects to consider: students' perceptions towards the English language, students' attitudes when they were in the English classes, and students' academic performance. Consequently, the first subsection contains information obtained through the surveys and interviews, the class observations are considered in the second one, the academic test results are analyzed in the third subsection, and the findings of all the research tools are discussed in the last part of this section.

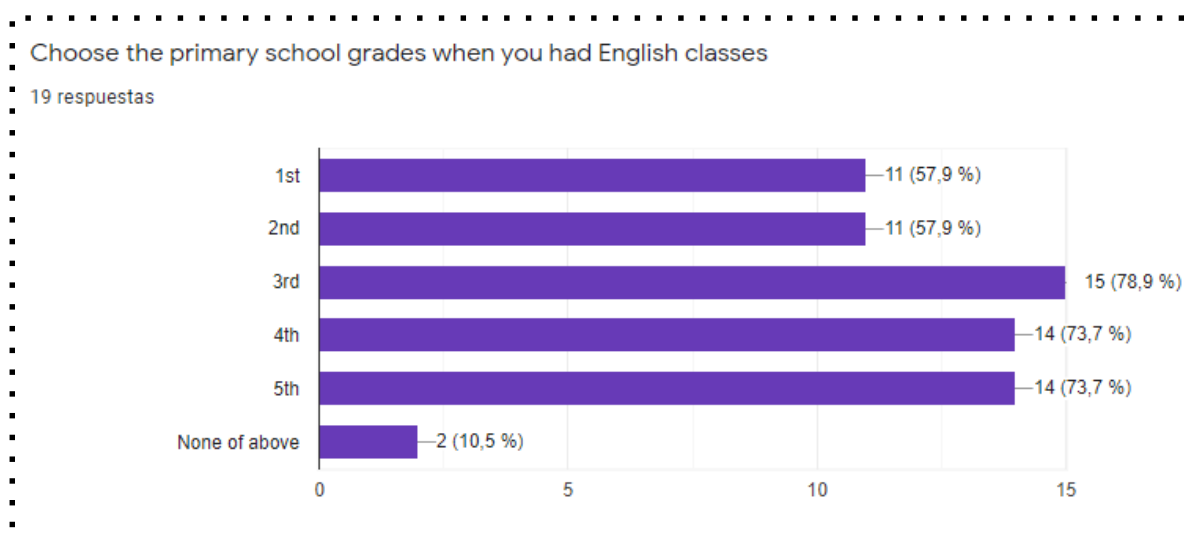
5.1. Students' Perceptions towards the English language and English classes

According to the research design, pre-posttest control design, this analysis is based on the comparison between stages of the research process and between the groups of participants. It was needed to divide this subsection into an individualized description of the findings of the surveys and interviews from each the experimental and the control group.

5.1.1. Findings of the Control Group

The survey gave a characterization of the control group. It was composed by 19 eleventh grade students. Ten of them were 16 years old and the others were 17 years old. There were 9 female and 10 male participants in this group. Eleven students studied from preschool at the school where this research was conducted, six of them studied there from primary school, and the other two students studied there from ninth grade. Half of the students who started after preschool studied at a private school and the other in a different public school.

Figure 4 *English Classes of Control Group's Students*



Two students of this group stated they did not have English classes at primary school and the rest started in different grades of the primary school. Thirteen students had studied English at different institutions, the most of them were part of an English program offered to public schools' students two years before the implementation of this study. Only one student stated a different language than English, she studied Italian and Korean at a language institute.

Table 2 Survey Language Level Control Group

	I am interested in learning English as a foreign language.		Learning English is useful in my context.		I am interested in some cultural aspects of some Anglophone countries.		I consider learning English is important because I am interested in learning about other cultures.		Learning English is important in my life project.	
	Pretest	Posttest	Pretest2	Posttest3	Pretest4	Posttest5	Pretest6	Posttest7	Pretest8	Posttest9
Strongly disagree	2	0	1	0	0	0	2	1	1	0
Disagree	0	1	1	1	2	1	1	0	1	1
Neutral (Neither agree nor disagree)	1	2	3	0	5	4	2	4	1	1
Agree	4	2	3	5	5	8	7	5	4	6
Strongly agree	12	14	11	13	7	6	7	10	12	11

After students' background questions, the surveys asked students to react to some statements by using one option of the five-level Likert's scale. Those statements were divided in the three levels of motivation described in Dörnyei's (1994) framework of L2 motivation (as cited in Dörnyei and Ushioda, 2011). About the first level of motivation, the language level, students' reactions to the five statements presented in the survey show a small improvement in the posttest in comparison with the pretest. In each of the statements, the student's choice of "strongly disagree" and/or "disagree" decreased, while the options "completely agree" and/or "agree" increased.

First, at the pre-stage of this study 12 students answered "strongly agree" to the assertion "I am interested in learning English as a foreign language", 4 students answered "agree", 1 student answered "neutral", and 2 students answered "strongly disagree". In the post-stage survey the answers for the same statement were: "strongly agree": 4, "agree": 2, "neutral": 2, "disagree": 1. To sum up, after the implementation of CLIL, 1 of the 2 students who had mentioned not being

interested in learning English kept his perception but changed it from “strongly disagree” to “disagree”.

Second, something similar happened with the statement about English usefulness in students’ contexts. Before the implementation, 11 students chose the option “strongly agree”, 3 students selected “agree”, 3 students had a “neutral” answer, and two students stated to be in disagreement (1 strongly disagree and 1 disagree). After the implementation, the results to the same statements were: “strongly agree”: 13, “agree”: 5, and “disagree ” 1. In other words, there was a moderate raise in students' agreement and, as a consequence, the number of students that considered English not useful was reduced from 2 to 1.

Third, students’ interest towards Anglophone cultures had a little change in the post test. While in the pre-test there were two students who disagreed with the statement, in the post test there was only one: the “agree” option was chosen by 5 students in the pretest and in the posttest the same option obtained 8 answers.

Fourth, in the statement about English importance was based on a desire to know foreign cultures, there was a positive change in students’ answers between the two stages of this study. In the first stage, there were three students who disagreed with the assertion but in the last stage there were not any answers instead of “strongly agree” (10), “agree” (5) and “neutral” (4).

Finally, the fifth question, which indicated the importance of the English language in students’ life projects also had an improvement. While there were two students who did not agree with that at the beginning of the study (one answered “strongly disagree” and the other “disagree”), in the posttest the answers were “disagree” (1), “neutral” (1), “agree” (6), “strongly disagree”.

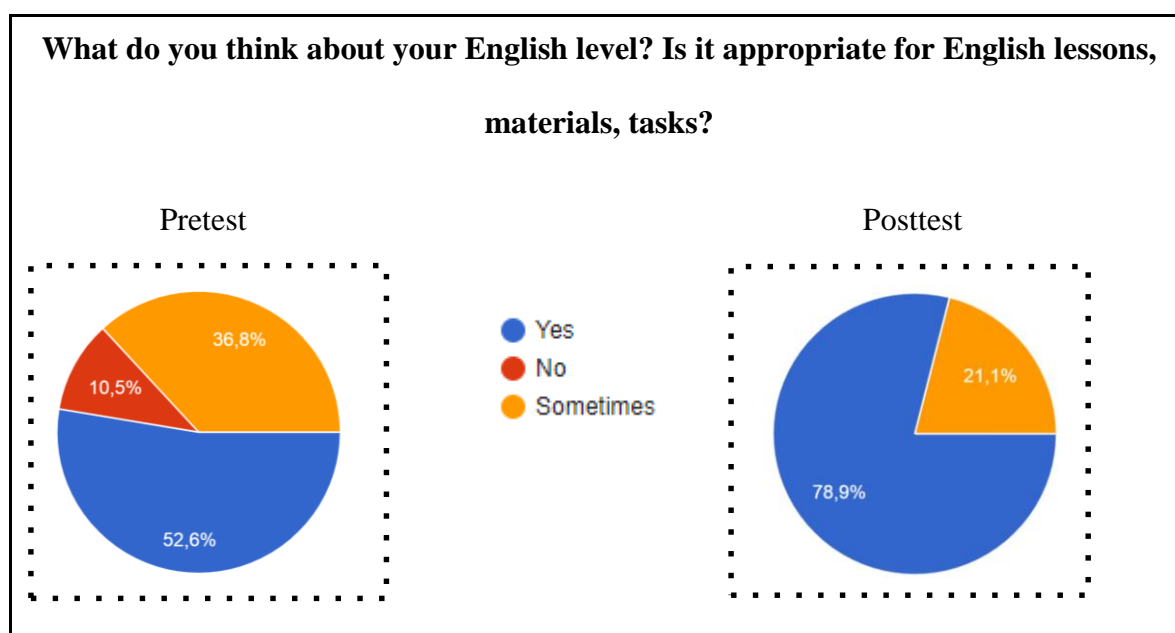
One of the questions of the interviews addressed the language level of motivation. Students were asked about if they considered English learning was important. In both pre and post interviews all students answered it was important. Something that brings to the discussion the fact that even when all students considered English important (according to the interview), there were 2 students who said (in the pretest survey) they were not interested in learning English and there was one student who kept his perception until the posttest. In the interview students gave the reasons why they thought English learning was important. In both the pretest and posttest many students mentioned that English was important to communicate with people around the world. Another repeated reason for considering English as an important language was the opportunity to explore material like music, series and movies; something that is part of the integrative level of motivation. But, most of the students stated English was important because it can help them to get job and educational opportunities; what corresponds to the instrumental motivation subsystem described by this author and, that was the case of the two students who expressed they were not interested in learning English in the survey.

Table 3 *Survey Learner Level Control Group*

	I usually look for other sources when there is something I studied at school but it is not clear		I feel confident when I have to participate in English class.		My English proficiency level is appropriate according my school grade.		I haven't had negative experiences in my English classes.		I always do the English activities according the instructions given by my teacher.		I am able to complete the English assignments within the time my teacher defines.	
	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest
Strongly disagree	1	0	3	0	0	0	0	1	1	0	2	0
Disagree	2	0	3	0	4	0	4	0	2	0	0	0
Neutral (Neither agree nor disagree)	3	4	5	7	5	7	5	3	0	4	2	2
Agree	9	7	5	8	7	7	7	9	8	7	10	9
Strongly agree	4	8	3	4	3	5	3	6	8	8	5	8

The second component of motivation described was analyzed with students' reactions to 6 statements. As in the first level described above, there is a certain difference between the stages of the study. There are two aspects which have a good improvement after the lesson plan. In the posttest there were double of students answering "strongly agree" to the assertion related to the autonomous search of material about the unclear aspects (need for achievement) and the fact of not having had any negative experiences in their English classes. At the same time, this last aspect was the only one which raises their "strongly disagree" answers since it went from 0, in the pretest, to 1 in the posttest.

Figure 5 *Appropriateness of English Level Control Group*



Another important aspect that varies a lot from the pretest to the posttest is related students' perception of the appropriateness of their English level. According to the survey, in the first stage 4 students considered their English level was not appropriate, but in the second stage any students chose "strongly disagree" or "disagree". That change was also reflected in the interview where in the pretest 10 students expressed they thought their English level was appropriate while in the

posttest the number of students with the same answer was 15. In both pre and posttests students who considered their language skills were not appropriate for the classes related that situation with the difficulty of understanding what the teacher explained and speaking in the English lessons.

In addition, students were asked (in the interview) about their responsibility in the English learning process. Even there is not a huge difference between the results in both stages, because there were 15 students who considered themselves to have been responsible students in the pretest and there were 16 students who considered the same in the posttest; what calls the attention in their answers was the fact almost all students (18 of 19) argued their responsibility based on aspects around the submission of their assignments.

Finally, the other aspects of this level assessed in the survey presented a reduction in the number of “completely disagree” and “disagree” answers. At the same time, those aspects have a slight rise in the “strongly agree” or “agree” reactions.

To sum up, students' answers in the interviews and surveys do not show any connection between students' perception of their motivation, their responsibility, and the importance they stated English had for them. On the contrary, some of the students who did not express motivation argued that it happened because they usually did not understand some aspects of the class that can show a relationship between students' language level and their motivation in the English classes.

The third level of motivation corresponds to the “learner situation level”. It considers three different motivational components: course-specific, teacher-specific and group-specific elements. In the interview students reacted to 16 statements which were related to those components. For the analysis of students' responses, those 16 statements were grouped by following the groups of components mentioned before.

Table 4 Survey Course-specific Motivation Control Group

	English materials are relevant for my learning process		I feel satisfied with the kind of activities I do in the English lessons		I feel interested in completing English tasks (assignments)		I like the method used in English classes		I expect English lessons can help me in my future academic or work experiences	
	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest
Strongly disagree	1	0	2	0	0	0	1	0	1	0
Disagree	1	0	0	1	2	2	1	1	1	1
Neutral (Neither agree nor disagree)	3	3	3	4	2	1	4	4	1	2
Agree	6	10	8	9	7	10	6	5	5	4
Strongly agree	8	6	6	5	8	6	7	9	11	12

This first group of statements of the learner situation level is related to English methodology and the materials used by the teacher in the language instruction. In this part, as in the other two, there was a small rise of students “agree” and “strongly agree” answers and, at the same time, a small decrease of “disagree” and “strongly disagree” choices. In all items there were 14 or more students who chose one of the two agreement options, which represent a positive perception toward the English course elements used in the control group. However, there were two items which kept the same quantity of agreement reactions. It was the case of students’ satisfaction with the kind of activities they did in the English class and their expectation of the English classes to be useful in future academic and work situations.

In addition, students were asked about the kind of activities they liked the most. There was not too much difference between what students answered in the two stages. In both stages most of the students stated the activities they liked the most were those related to speaking and writing exercises. The only difference in students’ answers to that question was in the pretests some students mentioned the activities they liked the most were reading comprehension ones.

Table 5 Survey Teacher-specific Motivation Control Group

	I complete the assignments because I want the teacher to feel satisfied with my learning process		My English teacher takes my opinions into account to prioritize what we need to learn		Teacher looks motivated when he teaches		Teacher always tells me the purpose of the activity and how I can put it into practice		Teacher's feedback motivates me to improve my English	
	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest
Strongly disagree	1	1	1	1	2	0	1	0	2	0
Disagree	3	1	1	1	0	2	1	1	0	2
Neutral (Neither agree nor disagree)	4	3	3	2	2	0	2	3	4	2
Agree	8	6	7	4	4	7	5	5	7	7
Strongly agree	3	8	7	11	11	10	10	10	6	8

In the second group of elements of the learner situation level, the situation was quite similar to the first one. In all statements students' reactions had the same behavior described before. There was only one aspect that suffered a considerable change and it was related to “the affiliative drive to please the teacher” (Dörnyei, 1994 as cited in Dörnyei and Ushioda, 2011) called. In the pretest, the aspect related to the teacher-specific motivation which less students agreed with was the one related to the motivation of submitting the assignments in order to make the teacher feel satisfied with students' learning process. But, in the posttest students' answers changed because it received 3 more agreement answers, which let the item obtain similar results than the others in the same subcategory.

The item that received the larger number of agreement answers was the one related to students' perception of the teacher as being motivated. On both stages of the research 2 students disagreed with that assertion but 15 in the pretest and 17 in the posttest answered they agreed or strongly agreed with that.

Table 6 *Survey Group-specific Motivation Control Group*

	I contribute to a common objective		English class rules help to improve students' learning		Most of the students respect English class rules		Teacher rewards students' effort		Students help each other in English class		Students compete with each other to get rewards	
	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest
Strongly disagree	0	0	2	0	2	1	0	0	1	0	1	1
Disagree	4	1	0	2	2	1	2	2	2	1	2	1
Neutral (Neither agree nor disagree)	6	2	5	3	4	5	4	0	7	4	9	5
Agree	3	8	4	6	9	6	10	9	7	8	6	7
Strongly agree	6	8	8	8	2	6	3	8	2	6	1	5

In the last group of elements of the learner situation level, students' responses varied a lot. First, there were some aspects that had a significant change between the stages of the research. Students' perception about their group goal-orientedness (the collaborative search of a common goal) and cooperation improved because at the beginning less than 10 students agreed or strongly agreed with those items but at the end in one of those aspects the number of agreement answers was 16 and in the other 14. Second, the aspects that students less agreed with in the posttest were the ones related to learners' respect for the norm system and competitions between them in order to get some rewards. Third, the aspect that had the bigger number of "agree" or "strongly agree" in both stages, the pretest and posttest, was the one related to the teacher's reward system. Finally, the other aspects did not have a significant difference between the stages but students' agreement improved.

To sum up, answers to the surveys and interviews provided some information about students' motivation in the different levels of Dörnyei's framework of L2 motivation. First, in the language level of motivation the only aspect that had a significant change was the one related to the English usefulness in students' contexts. Control group students' biggest motive to consider

English as important were related to a general interest in foreignness, something that is part of the integrative motivation level. Second, in the learner level of motivation there was an improvement in students' perceptions about each of the items they were asked for. In addition, it was found a connection between students' perceived L2 competence and their motivation because some of the students who expressed not feeling motivated also stated they did not usually understand some activities and topics of the English class. Third, in course-specific and teacher-specific aspects of motivation there was no significant difference but a positive difference in the affiliative drive to please the teacher. Besides, in the group-specific motivation items there was found a significant difference because students' agreement with those aspects improved in the posttest in comparison to the pretest. Finally, students who had integrative motives (e.g. to learn about the Anglophone culture and explore some elements of it) to learn English were more motivated than those who had just instrumental reasons like understanding English language would offer more opportunities in their future plans.

5.1.2. Findings of the Experimental Group

The experimental group was composed by 22 eleventh graders. They were from 15 to 20 years old, half of them were 17 years old. There were 14 female and 8 male participants in this group. Three students studied from preschool at the school where this research was conducted, six of them started there from primary school, and thirteen students studied there from high school. Eleven of the students who started after preschool studied at another public school.

About their English previous instruction experience, one student of the experimental group stated he did not have English classes at primary school and the other members of the group started receiving their English lesson at different grades of the primary school. Half of the students also had English classes at different institutions than the school. As in the control group, most of them

were part of the English program offered to public schools. Seven students expressed they had studied different languages than English. They studied Korean, French, Italian, Greek, Portuguese, Catalan and sign language.

Table 7 Survey Language Level Experimental Group

	I am interested in learning English as a foreign language.		Learning English is useful in my context.		I am interested in some cultural aspects of some Anglophone countries.		I consider learning English is important because I am interested in learning about other cultures.		Learning English is important in my life project.	
	Prete	Postte	Pretes	Posttes	Pretes	Posttes	Pretes	Posttest	Pretes	Posttes
Strongly disagree	1	1	1	2	1	1	1	1	1	1
Disagree	0	0	0	0	0	1	0	0	0	0
Neutral (Neither agree nor disagree)	0	2	1	1	5	5	2	2	0	1
Agree	5	10	5	13	9	9	6	9	5	10
Strongly agree	16	9	15	6	7	6	13	10	16	10

The second part of the survey evaluated students' integrative and instrumental subsystems of motivation as the components of the language level of his Dörnyei's framework of motivation. The analysis of students' reaction showed a decrease of 1 or 2 agreement responses in four items of this level of motivation. However, the number of "disagree" and "strongly disagree" stated almost the same. On the one hand, the reduction of the agreement answers in the items about students' interest in learning English (2) and their perception of the importance of learning English for their life project (1) was due to an increase of the neutral responses. On the other hand, students reduced the use of the agreement options (from 16 to 15) and raised the use of the disagreement ones to refer to their interest in learning about Anglophone cultures and their perception about the importance of English in their context. Finally, students' insights of the English language as an important element in their desire to learn about other cultures was quite similar in the two stages.

Even if the quantity of “strongly agree” choices was fewer in the posttest, the rise of the number of “agree” ones left the total number of positive answers the same (19).

In spite of this small difference between students’ answers in the survey in both pre and posttest, the analysis of the interview also provides some information about students’ language level motivation. First, when the experimental group was interviewed, all students answered (in both samples) English was important for them. Most of the students considered English was important because it can help them to have more job or academic opportunities and some others considered it was useful to communicate with people in the future when they can travel to another country. Those answers show students’ interest in learning English is focused on instrumental aspects rather than on a general interest in knowing a foreign culture or a predisposition to learn some foreign languages (integrative motivation).

Furthermore, students were asked if they felt motivated in the English classes. In the pretest, there were three students who did not consider themselves motivated. Even when in the posttest those answers changed because all students answered they felt motivated, pretest answers show a connection between the kind of language level the students had to learn English and the motivation they had. Those three students who had expressed not to be motivated (in the pretest) had the same instrumental reason to consider English as an important language: the fact it can offer some opportunities for their future. That was the case of the only student who reacted with a “strongly disagree” answer to the statement of being interested in learning English and to all the other statements on both surveys.

Table 8 Survey Learner Level Experimental Group.

	I usually look for other sources when there is something I studied at school but it is not clear		I feel confident when I have to participate in English class.		My English proficiency level is appropriate according my school grade.		I haven't had negative experiences in my English classes.		I always do the English activities according the instructions given by my teacher.		I am able to complete the English assignments within the time my teacher defines.	
	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest
Strongly disagree	0	0	1	0	1	1	1	0	0	0	0	1
Disagree	2	2	7	7	6	5	5	6	1	1	0	1
Neutral (Neither agree nor disagree)	6	5	7	4	8	8	5	3	3	3	7	3
Agree	12	13	4	6	5	7	5	8	6	13	10	14
Strongly agree	2	2	3	5	2	1	6	5	12	5	5	3

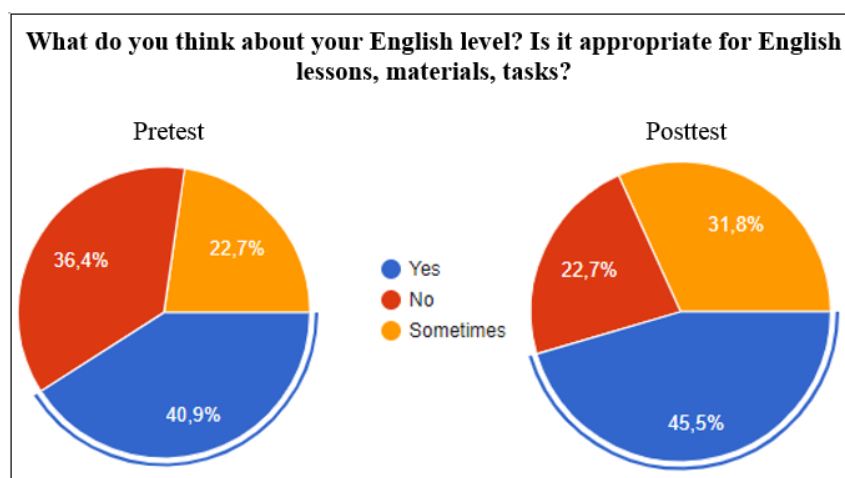
Based on Dörnyei's framework of motivation, students were exposed to 6 statements related to what this author called "learner level" of motivation. Those statements showed there was a positive progression regarding students' own perception of their English language level and learning process. In five of the six statements students' agreement reactions were bigger in the posttest than in the pretest, and in the other statement there was no change in students' answers. In addition, students' disagreement reactions decreased in two statements, stayed the same in three, and increased in one item.

On the other hand, students' autonomous search of extra material related to the classes had a slight improvement because while in the pretest 12 students chose the option "agree", in the posttest that option received 13 reactions. Students' confidence was the aspect that suffered the biggest change since it received 4 more agreement reactions in the posttest than in the pretest. Students' opinions about the appropriateness of their English level, not having had negative

experiences in their English learning process, and their abilities of submitting the task within the time set by their English teacher also had a small improvement in the quantity of the “strongly agree” and “agree” choice.

On the other hand, two students disagreed with the assertion that they were able to complete the English tasks within the deadlines in the posttest but there were not any disagreement answers to that item in the pretest.

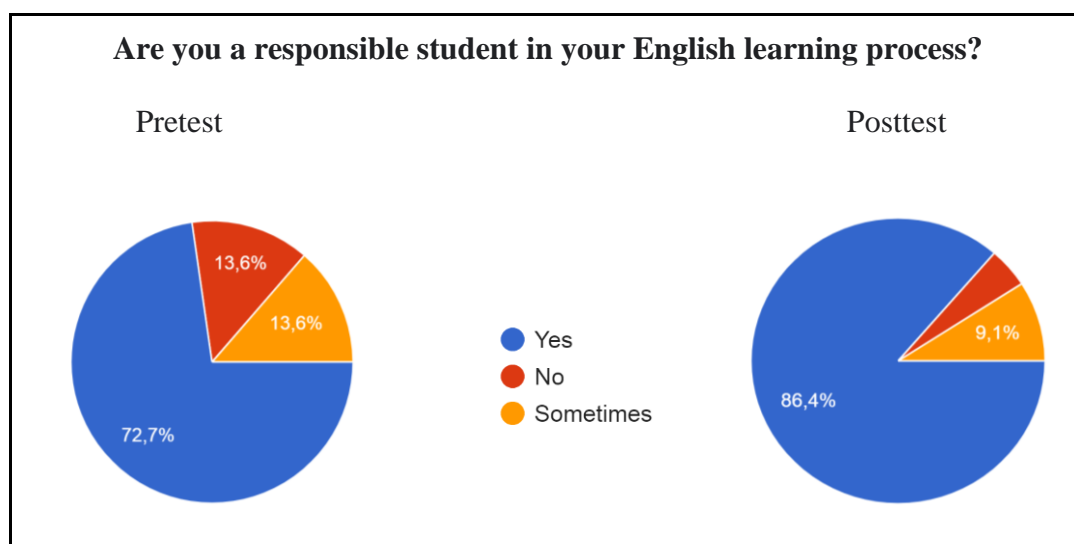
Figure 6 *Appropriateness of English Level Experimental Group*



Students’ perceptions of the appropriateness of their English level for the English class also improved in the interviews answered by the experimental group. While in the first phase of the research there were 8 students who answered “no” and 9 students selected the option “yes”, in the final phase the number of students who did not considered their English level appropriate decreased to 5 and the students who did consider they had an appropriate language level for the class increase to 10. Students gave some reasons why they thought their English level was not

always appropriate and there was a difference in the answers they say in the pretest and posttest phase. In the first phase, most of the students mentioned that they had problems with understanding the class instructions and content (4 students), a second group mentioned that the problem was when they had to talk or write (3 students), and some other students stated they had some difficulties by understanding some of the readings and listening material the material they used in class (2 students). In the second phase, the students' most frequent reasons to think their English level was not appropriate to the English class was speaking and writing (5 students) while there were only two students who considered the main reason for that inappropriateness was understanding the class content and one mentioned having difficulty with the material.

Figure 7 *Students' Responsibility in the English Learning Process Experimental Group*



In order to analyze the concepts of self-efficacy and need for achievement included in the learner level of motivation, students were also asked about their responsibility in the English process. Students' own perception of their responsibility varied in a positive way from the pretest to the posttest. While in the first stage there were 16 students who considered themselves to be responsible in the learning process, in the post test that number became 19. Something similar

happened to the number of students who considered they had not been responsible, the pre-stage quantity was 3 and at the end there was only one student who kept their perception. Students attributed the lack of responsibility to a lack of motivation and the fact some of them looked for the easiest way to do the things (in Dörnyei's words a lack of need for achievement). One student was even able to recognize their perceived L2 competence was not high because he lacked some autonomy.

The learner situation level of motivation was analyzed according to students' reactions to the last 16 statements of the interview. The comparison between the samples taken in the two stages of this research show some differences between students' responses.

Table 9 *Survey Course-specific Motivation Experimental Group*

	English materials are relevant for my learning process		I feel satisfied with the kind of activities I do in the English lessons		I feel interested in completing English tasks (assignments)		I like the method used in English classes		I expect English lessons can help me in my future academic or work experiences	
	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest
Strongly disagree	0	1	0	1	0	1	0	1	0	2
Disagree	1	0	1	1	1	0	2	0	1	0
Neutral (Neither agree nor disagree)	5	5	4	1	1	1	5	2	0	0
Agree	11	9	10	13	10	12	5	10	11	11
Strongly agree	5	7	7	6	10	8	10	9	10	9

In the first group of items of the learner situation level, those related to the methodology of the English classes, students' reactions can be divided into the three following groups: those whose answers were almost the same in both the pretest and posttest, those whose agreement answers (strongly agree and agree) raised, and one item which disagreement answers (strongly disagree and disagree) slightly increased and agreement answers had an opposite performance.

First, students' reactions to the relevance of the English material for the learning process and their interest in completing the English assignments stayed the same after the CLIL intervention; even the latter had more agreement answers than the former in both phases. Second, students' satisfaction with the kind of activities they did in the English lessons had two more agreement answers in the posttest than in the pretest, however it had one additional disagreement reaction. In addition, the statement about liking the method used in the English classes received four more agreement answers and one disagreement answer less in the posttest than in the pretest. Third, students' expectations that English lessons could help them in their future academic and work situations suffered a reduction of one answer in the agreement answers and a rise of one disagreement reaction. However, this was the item with more agreement answers in the pretest (21), followed by students' interest in completing the English class assignments (20); in the posttest both items had the same quantity of agreement answers (20) keeping being those with the bigger quantity of agreement reactions.

In the interview, students were asked about the kind of activities they liked the most and those they considered they were the most difficult. There was just one difference in students' answers because 8 of them specifically mentioned some of the activities they did during the CLIL lessons.

Table 10 Survey Teacher-specific Motivation Experimental Group

	I complete the assignments because I want the teacher to feel satisfied with my learning process		My English teacher takes my opinions into account to prioritize what we need to learn		Teacher looks motivated when he teaches		Teacher always tells me the purpose of the activity and how I can put it into practice		Teacher's feedback motivates me to improve my English	
	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest
Strongly disagree	0	1	0	2	0	1	0	1	0	1
Disagree	2	0	2	0	1	0	1	0	1	0
Neutral (Neither agree nor disagree)	4	3	3	3	0	0	2	1	3	2
Agree	10	10	10	7	8	7	8	10	10	8
Strongly agree	6	8	7	10	13	14	11	10	8	11

The second group of statements related to the learner situation level of motivation evaluated some aspects such as students' affiliative drive to please the teacher and their perception towards the authority type. There was a small difference between the results in the pre and post stage because there were two items who received the same quantity of agreement and disagreement responses and the other three had a rise in the number of agreement reactions by students. On the one hand, students' perceptions about their teacher's motivation and the importance he gave to their opinions to better decide what students needed to learn received 20 and 17 agreement reactions respectively. The former was the item which students agreed the most with in both stages, it had just one disagreement reaction. On the other hand, the other three items of this subgroup had one or two additional agreement reactions in the posttest in comparison to the pretest.

Table 11 *Survey Group-specific Motivation Experimental Group*

	I contribute to a common objective		English class rules help to improve students' learning		Most of the students respect English class rules		Teacher rewards students' effort		Students help each other in English class		Students compete with each other to get rewards	
	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest	Pretest	Posttest
Strongly disagree	0	0	0	1	0	1	0	1	0	0	0	0
Disagree	1	1	2	0	2	1	1	0	3	2	3	4
Neutral (Neither agree nor disagree)	8	3	1	5	2	4	7	3	4	3	6	2
Agree	9	13	11	10	11	10	8	13	10	11	10	13
Strongly agree	4	5	8	6	7	6	6	5	5	6	3	2

Regarding the last subgroup of elements of the learner situation level, there were some differences between the two samples taken in each stage of the research. Firstly, students' perceptions towards the usefulness and respect of the class rules had less agreement responses in the posttest than in the pretest. But, in the case of the relevance of the rules the disagreement answers decreased from 2 (in the pretest) to 1 (in the posttest); and in the case of the respect of the rules, there was the same quantity of disagreement answers (2). In other words, even if there was a small reduction of agreement with those aspects, that decrease of the agreement reactions represented an improvement of the "neutral" answers which shows a slight change. Secondly, the aspects related to the group's goal-orientedness, cohesion, reward system, and goal structure improved their quantity of agreement answers in the posttest and kept the same number or reduced the disagreement responses. The group's goals-orientedness was the aspect that improved the most because it received five more agreement answers in the posttest than in the pretest. Something similar happened to students' perception of the rewards system in which four students changed their minds in the posttest by thinking the teacher did reward students' effort. In each of the other two aspects (group's cohesion and goal structure) there were two more agreement answers in the second sample than in the first one. To conclude, this was the group of aspects of the learner

situation level of motivation where there was the biggest improvement in students' agreement with the motivation items.

In conclusion, the analysis of the interviews and surveys showed some differences between the different Dörnyei's levels of motivation. First, the survey did not show any significant differences in the language level of motivation after CLIL intervention but the interviews revealed the students' strongest motives to consider English to be important were related to instrumental aspects instead of integrative ones. But, after CLIL intervention all students answered they felt motivated in the English classes while three of them did not think the same in the pretest. Furthermore, students who had stated not to feel motivated had also defined English importance based on instrumental reasons (having more future opportunities). Third, there was an improvement in learner level of motivation and students' self-confidence was the aspect that improved the most after CLIL lesson. Fourth, in the course-specific and teacher-specific motivational aspects there was not a general significant change but, in the statement, related to students' liking for the method used in class in which only one student expressed disagreement. Finally, on the group-specific motivation, the group's goals-orientedness and their perception of the reward system were the two aspects that improved the most after CLIL intervention.

5.2. Students' Attitudes in the English Classes.

A teacher diary was used to collect the information about class progression, students' participation and their attitudes toward the class. At the beginning of the research it was planned that both the experimental and the control group had the same number of classes. But due to the academic alternation established by the Ministry of Education in order to guarantee a preventive isolation because of Covid-19 virus students' groups were subdivided. Therefore, the control group was divided into three subgroups (A, B, C) and that was the reason why they could receive five

classes in the intervention part of this research. The experimental group could have six classes because it was divided into two groups (A, B) due to the group's quantity of members. Even though the control group worked through a PBL lesson and the experimental group was exposed to a CLIL one, the research tried to use similar topics and to the extent possible the same material. It was done in order to limit the number of variables that could influence each of those groups' attitudes and to make the comparison between those groups. This part of the document separately describes the findings of the teacher's diary in the observation of each of the participant groups of this research.

5.2.1. Findings of the Control Group

Control group classes were part of a school project called "Family Economy and Its Impact on Human Development". The main objective was that students could identify the appropriate use of public services as a strategy to minimize family expenses.

In the first class students learned to write a paragraph in English. The class was composed of four activities. First, students were asked to choose one from two videos presented by the teacher. The first option was to watch one episode of a documentary series about nature around the world. The second video was about climate change. Subgroups A and C chose the video episode while group B watched the one about climate change. Teacher asked them to take notes of ideas and vocabulary they understand from the video. Second, the teacher explained the paragraph structure. Some students asked some questions related to the topic, some of them used L1. Third, the teacher asked students to help write a paragraph about a random topic. Only the most proficient students participated in the paragraph construction. Fourth, students were asked to write a paragraph about the information they understood in the videos. While writing, some students asked in English or Spanish about some vocabulary and most of them did not finish their

paragraphs during class time. Regarding students' attitudes, all students paid attention to the activities, only the most proficient ones seemed to be motivated in the group writing process. This situation could be due to what Dörnyei and Ushioda (2011) defined as "language anxiety". Even when students had previously completed the assignment, they did not feel good about sharing it because they had doubts about their speaking abilities.

The second class was focused on improving students' writing skills. In the first activity students read aloud their texts. Some students were so worried about the pronunciation and some others students had not completed their texts before the class. The teacher commented on students' production based on coherence, cohesion, lexical and grammar. The following activities were peer-reviewed and then re-writing of the first draft. In both activities many students had difficulties in identifying their classmates' text parts and mistakes which made them constantly ask the teacher to verify their corrections. Finally, most proficient students seemed to feel comfortable with the reading aloud activities and some students did not feel confident by correcting their classmates' mistakes. In other words, language anxiety aspects seemed again to not let some students feel comfortable by sharing their products and their perceived L2 competence did not let them feel confident to make corrections on the others' texts.

In the third class students worked about the connection between the carbon footprint and the economy. Firstly, they orally answered the question "what does carbon footprint mean?". Most proficient students answered the question and they mentioned some relevant information about the concept. Secondly, they watched a video about the carbon footprint in order to fill in some blanks, to understand the concept and to discuss the topic within the class. All students worked on the activity. Students' attitude in that class varied a lot because in the first activity there were some students who did not seem to be engaged with the activity but, in the second one motivation was

raised. This situation is related to the course-specific motivational aspects. Students' motivation was based on assessment since they felt more engaged when they needed to present a product that might be evaluated.

The main purpose of the fourth class was to make students participate in a debate where they had to show understanding of the information in some videos they were assigned to watch about carbon footprint, how electricity is made, the greenhouse effect, and climate change. During the class, the teacher first presented some expressions to express opinions in English. He worked on the pronunciation of the expressions and some students asked about the differences between the expressions. Then, students participated in the debate where there were two moderators who asked questions to the other students. Finally, students wrote a paragraph by answering one of the following questions: how is climate change related to my family's economy? Which of your family expenses make your carbon footprint bigger? How can you reduce some of your family's mandatory expenses by using some of the information presented in the videos?

Students' attitudes in the fourth class were better than in the others. Even though most of them were nervous with the second activity, they seemed to have a good attitude during the debate. Most of the students seemed to be worried about the paragraph but when the teacher explained it was related to the previous classes (paragraph structure and videos) their attitudes improved. In this class students' self-confidence improved after understanding the new task was about something they had worked before.

In the last class with the control group students presented some oral presentations. Teacher presented the assignment in the fourth class. Students were asked to make an inventory of electronic gadgets at their homes. They had to explain how the inventory was related to their expenses budget. Most of the students were nervous. Some of them expressed having prepared the

oral presentations but for them it was difficult to present without reading. Some students even asked the teacher to allow them to read during the presentations but the teacher denied their requests. In this case, less proficient students were more anxious than the most proficient ones.

As a conclusion, class observation of the control group showed a significant connection between students' attitudes and some of the aspects described in Dörnyei's framework of L2 motivation as learner's perceived L2 competence, language anxiety, and classroom's norm and reward system. First, the most proficient students usually were the most willing to participate in the activities. But, some students felt anxious even though they might have the answers of what the teacher was asking. They considered their language skills were not appropriate to participate in the activities. Second, when students considered their L2 competence was not at the same level as their classmates, they did not feel confident in completing some group activities like peer-correction and analysis of other's written productions. Third, when students knew they were going to be evaluated their attitudes improved, even if their anxiety improved. When the teacher announced a kind of assessment, students ensured their understanding of the instructions and the topic. Fourth, students' self-confidence improved when they realized what they were going to do was closely related to their previous knowledge. Some students who usually seemed to lack confidence improved their confidence when the teacher told them the knowledge they had worked earlier was useful for completing the current task. On the whole, language anxiety, student's perceived L2 competence, assessment, and self-confidence directly influenced students' attitudes during control group lessons.

5.2.2. Findings of the Experimental Group

The experimental group was exposed to a CLIL lesson based on Climate Change and the economy. Before deciding the topic of the lessons, students were asked to choose the topics they would have liked to work on from five options. 16 of the 22 members of the experimental group chose climate change as one of their options. The lesson has as its objective that students should be able to propose a strategy that helps to reduce climate change and improve the economy in school. In addition, CLIL intervention was composed of 6 classes where teachers and students had a challenge to use as much L2 as possible; one of the teacher's roles was to plan in which situations it was needed the use of translanguaging in order to ensure students' understanding and participation.

The first class was an introduction to the concept of climate change. In the first activity the teacher presented some expressions to express opinions because students needed to express in an oral and written way what they considered climate change meant. On the one hand, a lot of students participated voluntarily in the speaking part. On the other hand, most of the students preferred to share their written texts anonymously. In the second activity students watched a video about climate change in order to answer some questions about it. There were less volunteers than in the previous activity but all students answered when the teacher asked them one of the questions. Some students used the expression "how do you say..." to get the equivalent of some Spanish words in English. One student asked the teacher if the narrator of the video was a British person because of his accent. Finally, students read the first part of the text "What is climate change? A really simple guide" and they wrote the answers to some questions about the text. While doing the activity, some students asked some questions about vocabulary and grammar.

Regarding the students' attitudes towards the first class, most of them seemed to be motivated. First, most proficient students asked the teacher to correct their texts and they asked if there were any mistakes in their writing. That attitude showed motivation at the learner level because it represents the need for achievement some students had. Second, all students seemed to be engaged in the reading process. They seemed to be satisfied with the materials they were working on. Something that is part of the course-specific motivational components. Third, students interacted with the teacher in English by asking for some vocabulary. Students' self-confidence seemed to be better when they had to give their opinions than when they reported other's ideas because they might feel some anxiety for not making any mistakes. Fourth, some students seemed to have some integrative motives toward L2. That could be evidenced when they showed interest in understanding where the speaker was from. Finally, even though there was one student who did not seem to be motivated, the other did not have any problems when the teacher used only the target language during the class. One student, who stayed in the pretest interview did not feel motivated in the class, told the teacher he was motivated to learn English at that moment.

In the second class, students mainly worked on the greenhouse effect. The teacher started the classes playing two of the videos created by students as the first class assignment. Even most of the students did not want their videos to be played in front of the class. Two students were volunteers to show theirs, one of them was the students who seemed to not be too motivated in the first class. The second activity was a brainstorming about the concept of the greenhouse effect. The participation of the three first students was voluntary and the teacher started asking until having enough information. In the following two activities students worked on chemistry formulas. They had to match some greenhouse gases with their chemistry formulas. A lot of students wanted to participate in those activities because the first one was presented as a game to be completed as

a group as soon as possible. In the fifth activity the teacher explained the paragraph structure. Some students asked some questions about the structure and they seemed to be worried about the writing process. In the last part of the class, students watched a video about the greenhouse effect and were assigned to write an English paragraph about it. The teacher told them that the paragraph was not going to be graded, so they must take it as some practice instead of as an assessment tool.

Students' attitudes in the second class were as good as in the first class. Students seemed to be focused on the development of the activities, even if they did not want to present their videos, they did want to watch the others' presentations. Some students whose technical field was related to the lesson seem to be more motivated than the others. Connecting the technical field and the language instruction seemed to have helped those students to find some course-specific motives to participate and learn the L2. In addition, most of the students were eager to read even if they asked about the pronunciation of some words. They also asked the teacher if they had pronounced correctly what demonstrated a need for achievement of some students. Finally, students were more attentive when they knew they were going to produce something by using teachers' explanations. But, at the same time they seemed to have some language anxiety for the fact of being graded.

In the third class students worked on two main aspects, they participated in an oral role play and they worked on the carbon footprint. The class started with a role play when they had to give their opinions about the greenhouse effect. The activity was not as expected because students seemed to be confused with their roles or even the information they had to use in their roles. So, the teacher had to use L1 to clarify students' doubts. In the second part of the class, the teacher asked students to help them to analyze two paragraphs written by some of them. In the first text students identified the errors based on coherence, cohesion, grammar and vocabulary. The second text was disorganized, so students identified what was the topic, supporting and the conclusion

sentences. Most of the students participated a lot and they could identify most of the errors. In the following activities, students watched a video about the carbon footprint and they filled in some blanks in the video's script. The class finished with a writing exercise where students answered the question "how big is your footprint?". All students wrote their answers in their notebooks. They followed the instructions and there was only one student who misunderstood the concept of carbon footprint but he asked for correcting their text.

Students' attitudes in the third class were quite different than in the two first classes. On the one hand, some students had some good participation in the first activity but there were some others who were not ready for the activity. The teacher made a reflection about the student's engagement. He pointed out it was a surprise to him that some students were not engaged with the assignment. Some of them expressed they were sorry for that and that this situation was not going to happen again. On the other hand, all students seemed to improve their attitudes after the teacher's reflection. Students demonstrated an affiliative drive to please the teacher, which is one of the teacher-specific motivational components in Dörnyei's framework of L2 motivation. Students wanted the teacher to feel satisfied with their performance. Even though they did not receive any grades for the activities, they did not want the teacher to have a negative perception towards their learning process. Finally, the only student who had difficulties with the writing production asked the teacher to join the class again (with the other subgroup) in order to be able to understand and complete the assignment. It worked because at the end of second class he could complete the activities. That students' action demonstrated an improvement in their language level of motivation because he understood he has not acquired the required knowledge according to the class progression and he looked for a strategy to improve that situation.

The fourth class was focused on electricity production and use. The class started with students analyzing how electricity was used in the school and reporting orally the inventory of electronic gadgets. Students worked in big groups and made a reflection about the connection between electricity used and culture. Then, electricity field students gave some oral presentations about how to save electricity. The other students participated by expressing their ideas about the topic. In the next two activities students discussed and learned about how electricity is produced. Students watched a video about electricity production. They were assigned to answer some questions about the video. While the teacher explained in L2, some students spoke in L1 in order to help others to understand some vocabulary.

Students felt motivated in the fourth class. They realized it was useful to learn things about their contexts and reality. They demonstrated interest by the social and cultural aspects discussed in the class, something that can influence the language level of motivation. In the first activity, students seemed to be motivated because they liked the idea of observing school and understanding how electricity behavior was in the school community. In addition, they enjoyed the reflection about electricity used and culture. All students showed interest in participating by expressing their ideas.

In the fifth class students presented some oral presentations about electricity in other countries and worked on recycling. Students were assigned to answer the question how do people in other cultures use electricity? They needed to choose one country and look for information about electricity consumption and generation. Most of the students worked in pairs. Then, students read some posters about recycling facts. They must create a five-question survey that must be applied to members of the school community. They need to report to what extent the school community knew about recycling.

In the fifth activity, most of the students seemed to be engaged in all the activities of the fifth class, and some evidence aspects of Dörnyei's framework of L2 motivation were evidenced. Some students were nervous in their oral presentations but all of them were ready to submit them because they had some interest in foreignness. For the same reason, two students expressed they wanted to present their presentation because they were engaged in that activity to the point of having asked a relative who lived in Spain about how electricity was used there. Need for achievement was another aspect of the motivation framework that students expressed in that class. At the end of the class, some students asked the teacher if they could repeat their presentations because they felt they could have performed better. Students asked that because they wanted to improve their grades in that assessment. Even though they did not fail the activity, they wanted a better grade. One course-specific motivation aspect was also observed. Students demonstrated an interest in completing the English tasks when they presented their oral presentations and at the end when they realized they needed to conduct a survey.

The last class had as its purpose to listen student's oral reports on recycling and give them the time to create the product of the CLIL lesson. Firstly, students briefly presented the results of their survey. They presented some facts and graphs about their findings. Finally, the teacher explained the activity. He used translanguaging to explain the instructions. When he was choosing the leader of each group (technical drawing), one electricity student said they also used to work with blueprints. So, the teacher also chose the electricity students as leaders. Finally, students seemed to be motivated in the last class. This time, less students were nervous than in the other oral activities. Some students had some expectancy and interest in presenting both the survey results and the final product. They expressed having invested enough time in their presentations and liked the final activity.

To sum up, CLIL intervention demonstrated an improvement of the use of the target language during the class and an impact on all the motivation levels of Dörnyei's (1994) framework of L2 motivation (as cited in Dörnyei and Ushioda, 2011). Regarding the language level of motivation, some students demonstrated some integrative motives toward L2 when they demonstrated interest in some social and cultural aspects of their countries and a general interest in foreignness.

Some aspects of learner level such as language anxiety, need for improvement, and self-efficacy were observed in experimental group classes. First, language anxiety was evident in the classes when students had to present other's ideas. Students' anxiety raised when they were going to be evaluated. And, students were more confident when they had to give their opinions. Second, the need for improvement was present in both when students submitted an assessment product and when they were participating in class activities. In class, some students spoke and asked the teacher if they pronounced correctly. The most proficient students even asked the teacher to correct their written texts. Besides, some students asked the teacher for improvement opportunities when they considered their L2 competence was not appropriate. Third, students were more attentive to the teacher's explanation when they had an assignment because they were looking for self-efficacy.

Finally, some of the learner situation components of motivation were also identified in the CLIL classes. Course-specific motives were related to the fact most of the students felt satisfied with learning about the CLIL topic and that students were more motivated when they worked on something related to their specific technical field. Additionally, students demonstrated some teacher-specific motivational factors like affiliative drive to please the teacher because they wanted their teacher to be satisfied with their learning process. Lastly, some students had some expectancy

and interest in submitting the final assessment tasks, which evidenced some course-motivational components.

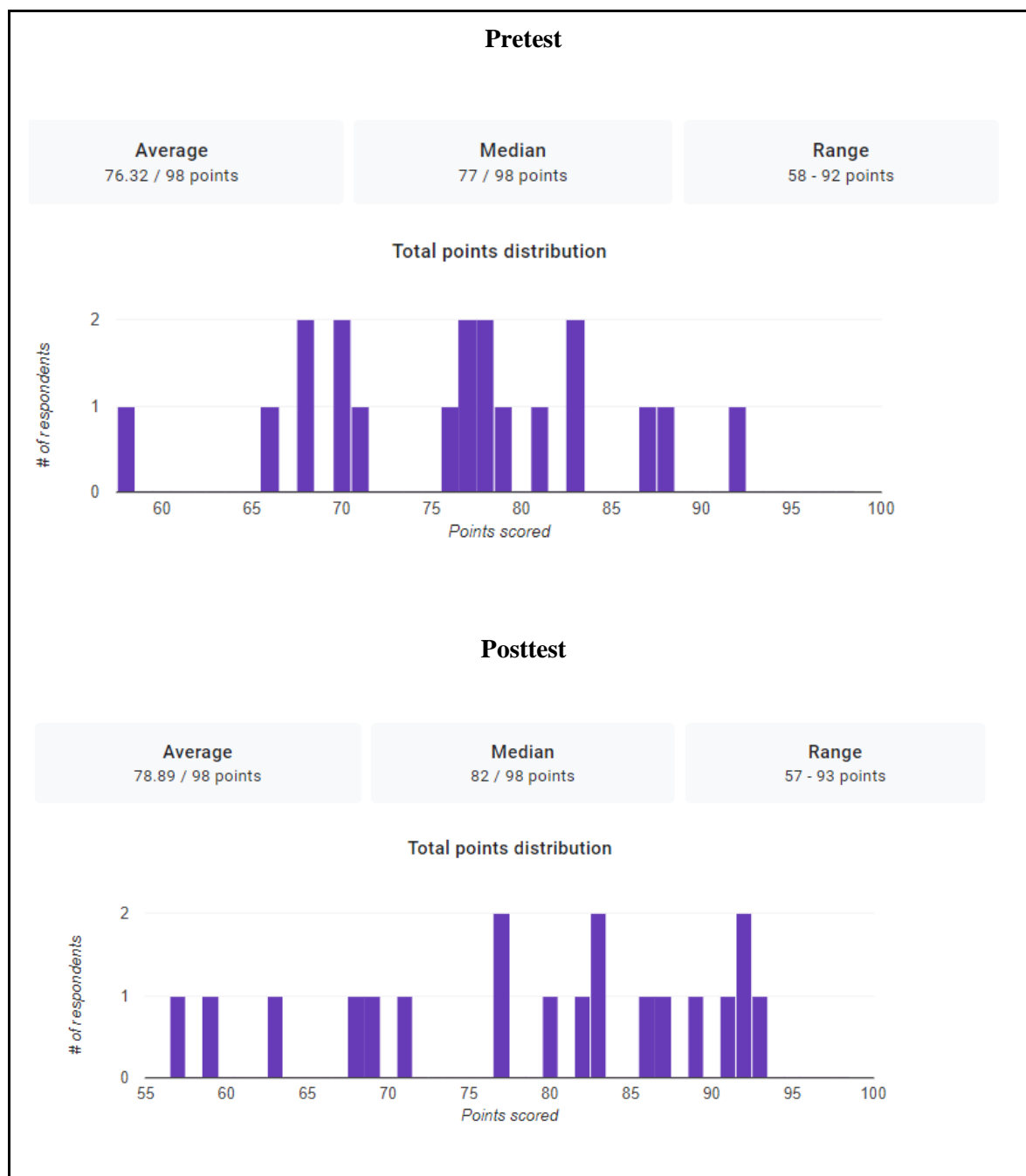
5.3. Students' Academic Performance

The academic tests students answered were used to identify whether students' language abilities improved after the research intervention. Both the control and experimental groups answered an academic test in the pretest and posttest phases. Students answered exactly the same test twice: before the data recollection of all the other research tools and at the end of the research. However, when the research started they did not know they were going to repeat the same diagnostic test at the end. They knew they were going to be evaluated with a similar test but they did not expect it to have the same questions they had already answered. That was necessary to allow a more accurate comparison between the two samples.

In addition, each part of the exam was assessed with points. The overall highest possible score was 98 points. The rubrics for the written and oral production included 4 items. Written texts were evaluated based on the coherence and cohesions of their ideas, the appropriateness of the vocabulary, and the correctness of the language aspects (grammar). Students' speaking productions were assessed according to the range and accuracy of language used to convey meanings, the fluency of students' utterances, and the cohesion of students' ideas. Each of the items of the rubric had a maximum score of 6 points. So, Students could maximum get 24 points in each of the writing and speaking parts. While, the reading and listening comprehension highest possible score was 25 points each.

5.3.1. Findings of the Control Group

Figure 8 Overall Scores Academic Test Control Group



Control group' overall results demonstrate a general improvement in students' academic performance after the intervention phase. However, the range of students was wider in the posttest

than in the first stage, which demonstrates that after the PBL intervention group's results in the test were less homogeneous than at the beginning of the research. In the pretest the lowest result was 58 while in the posttest it was 57. Something that demonstrates that, even though the group's average results improved, there were some students whose results dropped. On the other hand, while the standard deviation in the pretest was of 8,53, in the posttest it was of 11,46. Students' results were more heterogeneous after the PBL lesson.

Table 12 *Listening Comprehension Results Control Group*

Listening	Pretest		Posttest	
	Correct answers	Percentage	Correct answers	Percentage
Question 1	15	78,9	14	73,7
Question 2	16	84,2	14	73,7
Question 3	17	89,5	18	94,7
Question 4	18	94,7	19	100,0
Question 5	14	73,7	14	73,7
Average	16	84.2	15.8	83.2

Regarding the listening comprehension part, there was a slight difference between the two stages. Students had more difficulty in identifying the correct answers of the first two questions in the posttest than in the pretest. Their results in the other questions improved in the posttest. From a general point of view, students did better in the pretest than in the posttest regarding the listening comprehension ability.

Table 13 *Reading Comprehension Results Control Group*

Reading comprehension	Pretest		Posttest	
	Correct answers	Percentage	Correct answers	Percentage
Question 1	14	73,7	16	84,2
Question 2	16	84,2	14	73,7
Question 3	13	68,4	17	89,5
Question 4	17	89,5	14	73,7
Average	15	78,9	15,25	80,3

Students' answers to the reading comprehension questions improved in the posttest. There were two questions (1 and 4) that students had more difficulty with in the posttest, in the other they improved their results. Students' average correct answers were less in the reading comprehension part than in the listening comprehension one. What showed students had more difficulty in understanding information from written texts than in audios.

Table 14 *Speaking and Writing Results Control Group*

Speaking	Average answers		Writing	Average answers	
	Pretest	Posttest		Pretest	Posttest
Range	4,2	4,8	Ideas	5,2	5,1
Accuracy	4,6	4,8	Cohesion	3,7	4,5
Fluency	4,6	4,9	Vocabulary	4,7	4,9
Cohesion	4,0	4,1	Grammar	4,6	4,8
Average	4,3	4,7	Average	4,6	4,8

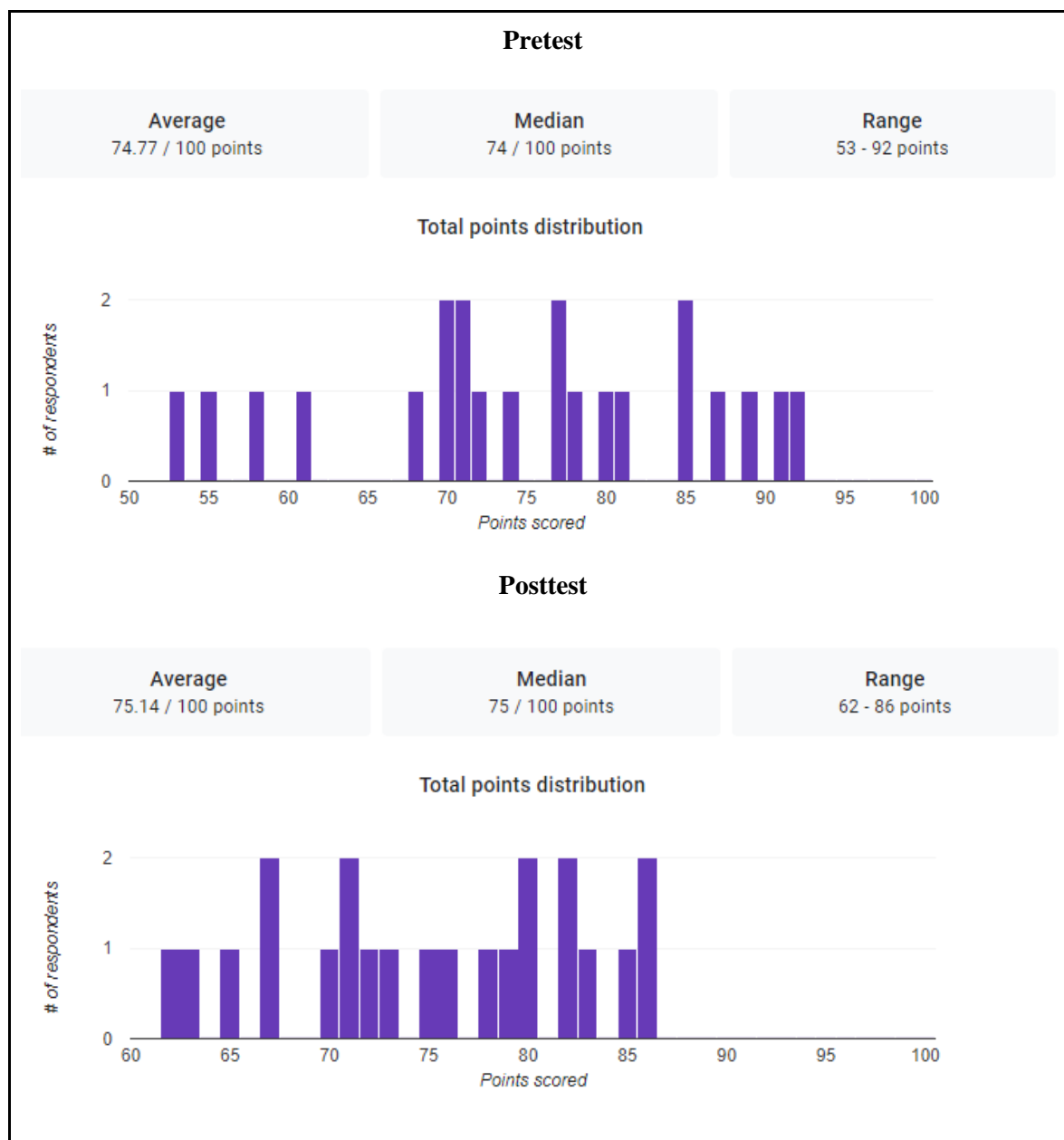
Regarding the speaking and writing skills, the control group seemed to have improved both their skills after the intervention. Even if students obtained less points in their speaking productions in both stages, they improved more in those skills than in the written ones after the intervention phase. In the writing part, the clarity of students' ideas had a slight decrease. It seems students focus on improving the other aspects and did not do the same with that one. On the other hand,

cohesion in the written text was the aspect that had the biggest improvement in the posttest. It had been the aspect with the most difficulty in the pretest but in the posttest, it got closer to the others. In the speaking part of the academic test, students' fluency was the aspect that improved the most. While the other three criteria had a similar progression.

To summarize, the general control group's results improved after PBL lesson plan but the posttest's results were less homogenous than pretest's. Students' greatest improvement was in their speaking skills, while results in the reading comprehension and writing parts had a small improvement. However, listening comprehension results slightly decreased in the posttest. Finally, cohesion of student's written productions was the aspect that had the most significant improvement.

5.3.2. Findings of the Experimental Group

Figure 9 Overall Scores Academic Test Experimental Group



Experimental group academic performance considerably improved after CLIL intervention. This advance is supported by two main aspects. On the one hand, students' average points increase in the posttest in comparison to the pretest. On the other hand, the range of students' results had a

substantial reduction from the first to the second phase. Experimental group's lowest result in the diagnostic test was 53 and, in the posttest, the lowest score was 62 points. However, the highest score decreased in the posttest due to the general decrease of the overall number of correct answers in the reading comprehension part. Last but not least, the standard deviation decreased to a great extent. In the pretest it was 12,02 while in the posttest it was 7,40. That indicates that students' academic results were more homogenous after the CLIL lesson.

Table 15 *Listening Comprehension Results Experimental Group*

Listening	Pretest		Posttest	
	Correct answers	Percentage	Correct answers	Percentage
Question 1	19	86,4	21	95,5
Question 2	16	72,7	22	100,0
Question 3	21	95,5	17	77,3
Question 4	16	72,7	21	95,5
Question 5	13	59,1	19	86,4
Average	17	77,3	20	90,9

Regarding the listening comprehension part, there was an important difference between the two stages. There was a 90% correct answer in the listening comprehension part of the posttest exam. While in the pretest, the average number of correct answers was 77%. There was only one question in which the percentage of correct answers was inferior in the posttest (question 3). However, in the four questions there was a high improvement.

Table 16 *Reading Comprehension Results Control Group*

Reading comprehension	Pretest		Posttest	
	Correct answers	Percentage	Correct answers	Percentage
Question 1	14	63,6	16	72,7
Question 2	19	86,4	18	81,8
Question 3	21	95,5	21	95,5
Question 4	20	90,9	18	81,8
Average	18,5	84,1	18,25	83,0

Students' answers in the reading comprehension part were slightly better in the pretest than in the posttest. Even if the average percentage is not quite different between stages, there was a small reduction of students' answers in the posttest. In the pretest there were 84% of correct answers, while in the posttest there were 83%. In the pretest, students did better on the reading comprehension questions than in the listening ones. But, that extremely changed in the posttest. Which demonstrates that students focused on improving their listening comprehension rather than the reading comprehension one.

Table 17 *Speaking and Writing Results Control Group*

Speaking	Average answers		Writing	Average answers	
	Pretest	Posttest		Pretest	Posttest
Range	4,0	4,6	Ideas	4,7	4,3
Accuracy	4,7	4,8	Cohesion	3,9	4,3
Fluency	4,6	5,0	Vocabulary	4,4	4,4
Cohesion	3,9	4,0	Grammar	4,5	4,3
Average	4,3	4,6	Average	4,4	4,3

First, students' answers to the speaking part of the academic tests improved in the posttest. The aspect that had the greatest impact was the range of appropriate vocabulary students used to

orally answer the questions. The second most impacted aspect was students' accuracy to convey meaning. The other two items also had an improvement but not as significant as the two mentioned before. Second, students' writing scores suffered a small reduction from the pretest to the posttest. Even if students seemed to have worked on the cohesion during the intervention, their average answers on grammar and coherence of ideas had a negative change in the posttest. Finally, the speaking and writing results had the same performance as the other two skills. In the pretest the average score of speaking was inferior to the writing ones. But, in the posttest, students the results were opposite. It seemed through CLIL intervention students focused on improving their speaking skills instead of working hard to keep progressing on their writing skills.

In sum, CLIL intervention had a general positive impact on students' academic performance. Firstly, listening and speaking skills were the skills that showed the biggest improvement. Students' appropriate use of spoken language and fluency were the aspects in which students improved the most. Secondly, there was an important reduction of the standard deviation of experimental group's results. However, reading comprehension and writing results slightly decreased after the intervention.

5.4. Discussion

After having analyzed the data collected by the different research tools, there is enough evidence to answer the research questions. This part of the document mainly aims to answer the question "does CLIL approach have any influence on students' attitude toward the English learning process in a technical high school?". In order to answer it, it is needed to compare the findings of each the experimental and control groups that are related to students' perceptions towards the English learning process, students' attitudes where there work through a PBL lesson (control

group) and a CLIL lesson (experimental group), and students' academic performance after being exposed to those two different lesson plans.

First, student's perceptions towards their English learning were quite different among the experimental and the control group. Regarding the language level of motivation, in the control group there was not a significant difference after the intervention but in students' integrative motive to learn English. In the experimental group, the interview showed there was an improvement in students' attitude after CLIL intervention. In addition, most of the students of that group expressed instrumental motives to learn English. Second, the learner level of motivation improved in both the control group and experimental group. In the former, students demonstrated a relationship between their perceived L2 competence and their motivation. In the latter, self-confidence was the aspect that improved the most after CLIL lessons. Third, in the course-specific and teacher-specific sublevels of motivation there was not a significant difference in any of the two groups. However, there was a positive improvement of students' affiliative drive to please the teacher after intervention with the control group. While in the experimental group there was a significant improvement in students' liking for the class method. Finally, there was not any relevant difference in the sublevel of group-specific motivation.

Second, those who worked through the CLIL classes had better attitudes than students who worked through the PBL lesson plan. On the one hand, the control group participation was more affected by students L2 perceived competence than in the experimental group. In the control group, students who considered not having an appropriate English level did not feel good working in group activities. In the experimental group, even if there was some language anxiety, both the most and less proficient students seemed to be motivated in the classes. Furthermore, experimental students' need for achievement was evident because they worried about their pronunciation and

about improving their tasks when they realized their performance was not as required. In addition, they expressed some expectancy to work in the class, especially when they worked on something related to their technical field. On the other hand, the control group's attitude changed when they realized they were going to be evaluated. While in the experimental group, their attitudes depended on their interests in some social and cultural aspects discussed in class. Besides, in the CLIL classes, students also demonstrated an affiliative drive to please the teacher and to make the teacher feel satisfied because of their learning process.

Third, students' general academic performance improved in both the experimental and the control group. Listening and speaking were the language skills with the biggest improvement in the experimental group, while the control group's greatest improvement was in speaking skills. In both groups there were some skills who had a slight decrease in the number of students' correct answers. In the experimental group, the reading comprehension and writing were the parts in which students reduced their scores, while the control group' number of correct answers in the listening comprehension questions decreased. Finally, experimental group standard deviation decreased in the posttest, whereas it improved in the control group's scores.

Even if most of the experimental group students stated to have more instrumental than integrative motives to learn English and the control group stated the opposite, in the class observation what students demonstrated was quite different. Experimental group demonstrated to be interested in learning about both theirs and others' cultural aspects. Additionally, the control group did not demonstrate an interest in other cultures. That might happen because of the difference between the class compounds. Culture is one of the four principal aspects considered in the CLIL approach, that is why in each of the experimental classes the cultural aspect was considered as important as the linguistic or content components.

Students self-confidence was another factor that was quite different among the experimental and the control group. Experimental group students stated to have raised their motivation after CLIL intervention and that was evident in class observations. Students demonstrated to feel more comfortable when they talked about something they were familiar with. So, CLIL classes were useful to improve students' motivation because in them students could connect their technical field knowledge to the English language. In addition, that motivation made students want to improve their language skills and performance in the different class activities.

Regarding students' academic performance is related to some aspects of the class observations. First, in both lesson plans there were many activities where students had to use their speaking skills. In addition, the control group took most of the time in working on their writing skills while in the experimental group students wrote some paragraphs but they were not the focus of the classes. Therefore, students' results in the final test demonstrated which activities students worked most of the time and in which they focused their attention. Second, the difference between the standard deviation between the two groups of this research match to students' attitude during the English classes. While in the control group most proficient students were usually the ones willing to participate, in the experimental group class participation was from both the most proficient and less proficient students. So, there were students in the control group who did not improve while there were some others who notably improved their results in the final test. In sum, final test's results demonstrate the impact of the lesson plan activities in students' improvement of certain language skills.

6. Conclusions

After having analyzed and discussed the results of the different research tools, this research concluded that CLIL approach had a positive impact on students' attitudes towards the English class due to findings about the different students' attitudes and perceptions when they worked through a PBL and when they went through a CLIL lesson.

First, students' motivation improved after CLIL in spite of some factors that might affect their attitudes towards the English learning process. Research tools demonstrated a connection between demotivation and students' kinds of motives to learn the language. So, students' who had integrative reasons to learn English were the ones who felt more motivated while those who felt demotivated expressed they have just instrumental motives to learn English. However, after CLIL implementation all experimental group members stated they felt motivated in the English classes even though some of them had expressed not to feel motivated in the pre-test. The improvement in the experimental group's motivation was also evident in the enhancement of students' perception towards their self-confidence after being exposed to the CLIL lesson.

Experimental group's motivation improvement can be attributed to the implementation of CLIL and its 4C's framework. First, the planning of the thinking processes progression (*cognition*) helped students to convey learning by proving them a scaffolding process, where students felt more capable of achieving the learning challenges proposes during the CLIL lesson. Second, students demonstrated to be more interested in the English class when they noticed a link between their technical fields and the English learning process, this relationship helped them to acquire some knowledge and understand the importance of climate change (*content*). Third, determining how interaction must be addressed and which language aspects must be worked (*communication*)

allowed students to feel more confident to use L2 as a means to interact and learn. And, the inclusion of *culture* aspects helped students to both improve their intercultural understanding and have some integrative motives to learn English, which this research demonstrated were the aspects that most determined students' perception towards the learning of English.

Second, in the PBL classes students' perception of having a low L2 competence caused some language anxiety, less class participation and some discomfort during group activities. Less proficient students demonstrated to not feel comfortable with the English lessons and they avoided participating in the different class activities. In the CLIL lessons students also felt some language anxiety but it helped them to feel a need for improving until they finally achieved the class goal. In other words, students assumed CLIL classes as the challenge of being able to participate in an environment in which L2 was both the learning means and the learning end. Students demonstrated that by showing some expectancy for the English class activities and asking the teacher for improvement opportunities.

Third, there were no significant differences between the students' academic performance in the test. In both groups there were some language skills which results improved and some in which they slightly decreased but that was closely related to the kind of activities each of the lesson plans included. So, it demonstrates the influence of the lesson plans' emphasis on the students' learning and improvement of their language skills.

Finally, this research is relevant for the Colombian public English teaching context, since the CLIL approach has been closer related to private institutions, and it seemed to be something far away from the public elementary and secondary schools' realities. But, this research demonstrates that the CLIL approach can be implemented in a Colombian public school by applying this approach to the eleventh group with the lowest English proficiency of the school. It

also proves the CLIL approach helps to improve students' motivation in the English learning process. Due to all the above, I consider it is relevant that future research must address an evaluation of CLIL's impact on reducing standard deviation among students' academic performance, the implementation of this approach on different contexts like in projects that aim to improvement some specific language skills, public non-technical-industrial schools, and in contexts in which CLIL intervention can be implemented during a longer period of time.

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