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Fostering Personalized Learning through CLIL in 8th Grade Biology at San Bonifacio de las Lanzas School

Presentado por:	Lana Ramnath
Tipo de TFM:	Intervention proposal
Director:	José María Díaz Lage
Ciudad:	Ibagué, Colombia
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And finally to my dad, I am sorry I was unable to meet you in Canada this summer. Here is the reason dad. Rest in peace. Until we meet again. Love you and thank you for all that you have done to put me on this path.

Abstract

Bilingual education in Colombia has been expanding over the years in response to the advantages on a global scale of mastering this lingua franca. However, attending a bilingual school does not guarantee a fully bilingual individual who comprehends and produces English at a native or near native like level. Students need to embrace language learning which requires great learner autonomy and motivation.

This intervention proposal is designed to use the motivation that students have for their content areas to improve language learning. We propose the implementation of content and language integrated learning (CLIL) and personalized learning in 8th grade Biology in order to support language, improve student use of BICS and CALP and improve overall English levels. We provide the theoretical background on which the proposal is based. First with CLIL, its driving principles, core features and CLIL teacher competences are examined. Next we explore scaffolding and useful strategies for classroom use and finally present research on personalized learning and how it relates to CLIL.

The proposal incorporates data collected from students and teachers which give insight into the attitudes that affect language learning and language teaching respectively. It aims to identify the practices that the school has in common with the CLIL approach and use these to provide a connection to new ones. Training sessions are designed to be carried out with both Biology and English teachers in order to have a language perspective and to have more complete information on the students which would aid in the application of personalized learning strategies. This is followed by a planning session to produce a CLIL lesson adapting an existing lesson plan.

Finally, we look at the limitations of this proposal and the need to extend the proposal to other content areas and create a culture of personalization so students can adapt to this new autonomous way of working.

Key words

Bilingual Education, Content and Language Integrated Learning (CLIL), CLIL Core Features, Personalized Learning and Scaffolding

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1. INTRODUCTION

The market for language learning has been expanding as can be seen with the increase in the number of language schools, online courses and bilingual schools. There are so many resources freely available yet people still look for the promise of a teaching method to guarantee learning in a short time span. What is often overlooked is that learning an additional language whether in a language school, online or as part of a bilingual school programme requires learner autonomy. Looking further into bilingual education in Colombia and indeed here at San Bonifacio de las Lanzas School, we see the same pattern emerging, parents seeking this type of education for their children with the expectations of bilingualism upon graduation. As in the aforementioned language learning environments, without students taking a more vested interest in their learning process, we often find them not motivated to embrace learning content through an additional language not to mention the language itself. Knowing that learner motivation and autonomy is essential in bilingual education, unfortunately, such instruction is rarely part of any syllabus and students might have some guidance or be left alone to come to their own conclusions.

A central issue in successful bilingual education is finding the right balance between student motivation for learning both content and language. Students see content subjects as important but view language classes such as English as extra or non-essential. Moreover, this way of thinking is sustained when content subjects designated to be taught through an additional language are not strictly done so because teachers are not trained to integrate language into their classes. The additional language loses its importance in the eyes of the students and this affects their attitude towards language. We believe the content and language equilibrium can be accomplished with personalized learning through the implementation of content and language integrated learning (CLIL). Students need to gain motivation for language learning not only through content subjects but also by embracing learning and becoming autonomous learners. This master's dissertation investigates how personalized learning can be used as scaffolding in CLIL to help students take responsibility for their learning.

Even though considerable research has been devoted to the CLIL approach, personalized education and scaffolding separately, rather less attention has been paid to combining these elements in bilingual education. At San Bonifacio de las Lanzas

School, there is the need for a plan that contains all of these as there is content in English but not CLIL. Language is therefore not scaffolded which leads to a poor attitude towards English and students dependent on private tutors and the use of Spanish to help them to learn content and language. The CLIL approach would assist students in learning content through English and thereby increasing their interest in language learning. As learners create their own knowledge we can see personalized learning emerging which motivates learning in general.

This dissertation aims to design an intervention proposal for 8th grade Biology at San Bonifacio de las Lanzas School in Ibagué, Colombia. The proposal first presents a literature review on CLIL, scaffolding and personalized learning which will be used as a basis to analyse the current situation at the school. Interviews of teachers and students will take place to understand current attitudes and needs. This will be followed by class observations and finally, recommendations as to how the learning process through personalized learning in CLIL encourages students to drive their own learning and give them the motivation required to move them from merely covering what is done at school to being autonomous learners who seek to go beyond the classroom (Coyle, 2006).

1.1. JUSTIFICATION OF THE RESEARCH QUESTION AND PROBLEM

The growing interest in bilingual education in Colombia has seen many schools move from monolingual to emphasis in English to Spanish-English bilingual. Many schools with a long history of bilingualism have well-established programmes where content subjects are taught in English alongside language classes. Here, the CLIL approach is only just receiving attention but this has been limited to large cities such as the capital, Bogotá. At San Bonifacio de las Lanzas, Biology is taught in English in the contextual cycle and too often students see English as an impediment to learning rather than an instrument for learning. This attitude to English, whether in content or language classes, is a cause for concern as some students see bilingual education as additive and others as subtractive. The latter seems to be the case as many students see the ability to carry out basic communication as sufficient.

When faced with Biology class in English, students do not expect the class to be completely in English, nor do they expect to have to try to grasp complex concepts

while using only English – any scaffolding done is therefore in Spanish. Students also rely on private tutors should they be unable to keep up at school. If classes are planned so that language becomes an integral part of the lesson, and student needs are taken into account, students will be more motivated to learn through English. Therefore, how would the implementation of CLIL as the main approach to Biology foster personalized learning in 8th graders at San Bonifacio de las Lanzas School?

Introducing CLIL and demonstrating to both teacher and students that language can be integrated into classes alongside content is but one step to helping students become proficient users of English. We believe that personalized learning is the key to making students become more aware of their language learning. One of the most pressing issues in education, is motivation. Although they may have many resources at hand and the support of their school, students lack the motivation required to move them from merely covering what is done in the classroom to being autonomous learners who seek to go beyond the classroom.

1.2. BRIEF ANALYSIS OF THE STATE-OF-THE-ART

The theory examined in this master's dissertation is based on content and language integrated learning (CLIL), personalized learning and scaffolding.

CLIL is an educational approach which provides dual-focussed education where content is taught through an additional language (Coyle, Hood & Marsh 2010). In this master's dissertation we will examine the 4Cs framework which examines the pillars of CLIL, which are content, communication, cognition and culture based in the work of Coyle, 2006. There are three types of CLIL known as soft, modular and hard CLIL (Bentley, 2010). The core features of CLIL as introduced in Mehisto, Marsh & Frigols, 2008, can be linked to personalized learning and scaffolding. These features are multiple focus, safe and enriching learning environment, authenticity, active learning, scaffolding and co-operation.

Personalized learning is an area of education today that aims to make learners become responsible for their own learning. According to Järvelä, 2006, this approach to learning levels the playing field where every student counts and so giving them a voice in their education. She outlines seven dimensions as follows: development of key skills levelling the educational, playing, motivational strategies, collaboration in

knowledge-building, development of new models of assessment, the use of technology as a personal, cognitive and social tool and the new role of teachers in better integration of education within the learning society.

West-Burnham (2007) considers in personalized learning every child matters and states fives components of personalized learning which are learning how to learn, assessment for learning, teaching and learning strategies, curriculum choice and mentoring and support.

García Hoz (1988) describes three aspects of personalized learning: singularity, autonomy and openness. These aspects are closely connected to the six core features of CLIL as outlined by Mehisto et al., 2008.

Reviewing personalized education would not be complete without a study of the area of scaffolding. The work of Vygotsky (1978) on the zone of proximal development and further studies by Wood et al. (1976) pave the way for more comprehensive studies of Hammond & Gibbons (2005) who describe three features of scaffolding: extending understanding, temporary support and micro and macro focuses. Alibali (2006) has tabulated a wide-ranging list of scaffolding strategies.

CLIL, personalized learning and scaffolding are three major areas which will be reviewed and utilized in our intervention proposal.

1.3.   OBJECTIVES OF THE STUDY

The objective of this dissertation is to propose an intervention plan for 8th grade Biology where CLIL is used to foster personalized learning. The plan will focus on teachers and students.

The primary aim is to show how student performance in language can improve by the implementation of CLIL in 8th grade Biology. To further support students, a secondary goal of personalizing learning and hence making every student matter will be explored.

2. LITERATURE REVIEW

To design the intervention proposal, we will review the literature on the main concepts that will go into the plan. The review is divided into four sections. The first section describes CLIL starting with its definition, a brief history, types, the 4Cs model, core features and its relevance in education today. The next section deals with CLIL in Colombia, its implementation and potential. In the third section, we will delve into personalized learning and finally we will examine scaffolding, its benefits and role in CLIL.

2.1. THE CLIL APPROACH

In this intervention proposal, personalising learning and motivating students to improve their English proficiency is based on the CLIL approach. It is therefore essential to review CLIL by giving a definition, description of its origins, its forms, the fundamentals such as the 4Cs model and core features and lastly its relevance in education today.

2.1.1. WHAT IS CLIL?

Content and Language Integrated Learning (CLIL) refers to 'a dual-focused educational approach in an additional language is used for the learning and teaching of both Content and Language' (Coyle, Hood, & Marsh, 2010). Content and language are therefore entwined even though the focus may shift from one to the other. This is by far not a new form of education as similar practices have been in existence for decades: what makes CLIL different is how it integrates and extends both content and language. It is a holistic experience which involves good practice and provides a range of models which can be applied to different types of learners.

Eurydice (2006) states that the two fold objective of CLIL means to guarantee first, that pupils attain knowledge of curricular subject matter and secondly, become proficient in a language other than that used for instruction. In addition to these aims in Europe, official recommendations differ from country to country and the following objectives are given different levels of importance:

- **Socio-economic objectives**: to prepare students for a globalized society and offer them better job opportunities.

- **Socio-cultural objectives**: through CLIL vehicular languages students are taught the values of tolerance and respect for other cultures.
- **Linguistic objectives**: students are able to develop language skills by using them for effective communication and real practical purposes.
- **Educational objectives**: students are able to develop subject-related knowledge and learning ability.

It is important to distinguish that CLIL is not teaching a language using a range of content nor is it teaching content translated into a different language from the native language. It includes elements of both. CLIL is flexible and depending on context can have many variations. There are different models which have the founding principle of integrating content and language learning (Coyle, 2006). Such models bring up confusion as to the difference between CLIL and other related approaches such as many immersion models.

Though the Canadian immersion is seen as a precursor for CLIL, Lasagabaster and Sierra (2009) have explained principles that are common and also different to immersion models. They cite five principles that "encompass clear psycholinguistic and methodological elements not only of immersion programmes but also of any CLIL programme":

1. The final aim of immersion programmes is proficiency in both the L1 and the L2, without sacrificing academic knowledge acquisition.
2. The vehicular language must be unfamiliar so that its learning mimics the L1 acquisition process.
3. Parents believe that immersion programmes are the best option for learning L2.
4. The teachers must be bilingual.
5. The communicative approach is key so as to gain effective communication. It is therefore necessary to have a motivating learning environment with significant situations and other invested speakers.

The aforementioned similarities can make it difficult to easily separate CLIL and immersion. Despite the similarities there are matters that emphasize the differences between CLIL and immersion programmes:

1. CLIL vehicular language is not spoken locally as they are in immersions. In CLIL the languages of instruction are foreign languages where many of the students use them only at school.
2. Immersion teachers are usually native speakers whereas this is not the case in CLIL contexts.
3. The starting age for immersion programmes is usually early, however in CLIL it is late.
4. Teaching materials in CLIL are abridged versions as opposed to those aimed at native speakers used in immersions.
5. The language objective of immersion programmes is to reach native like competency but for CLIL it varies according to the context.
6. Immigrant students are often enrolled in immersion programmes rather than CLIL ones.
7. CLIL programmes are relatively recent in comparison to immersion ones which have decades of research done on them.

The benefits of CLIL are endless and have been the subject of much research. When such information comes not from theory but from case studies, the benefits are clear. Coyle (2005) draws on a variety of reports, mainly the CLIP report (Wiesemes, 2005), to demonstrate the potential that CLIL offers. There are:

1. **Raising linguistic competence and confidence** – learning content in a foreign language is quality time and this leads to linguistic competence.
2. **Raising expectations** – CLIL enables learners of all abilities as students with lower abilities perform better in English when in a bilingual programme.
3. **Developing a wider range of skills** – as content and language are integrated, language learning provides opportunities for "problem-solving, risk-taking, confidence building, communication skills, extending vocabulary, self-expression and spontaneous talk". (Wiesemes, 2005). This is because the language is put in context and so there a real purpose for communication.
4. **Raising awareness**: cultures and the global citizenship agenda – students learn more about different cultures by studying them in the language as culture and language are inseparable.

CLIL is a multifaceted approach implying strategies that support both content and language. To achieve its twofold aim it requires "the development of a special

approach to teaching in that the non-language subject is not taught *in* a foreign language but *with* and *through* a foreign language" (Eurydice, 2006 p. 7). CLIL is challenging but also motivating and authentic for students and teachers alike where language is acquired in context.

2.1.2. A BRIEF HISTORY OF CLIL

According to Coyle, Hood and Marsh (2010), interest in CLIL stems from both reactive and proactive responses to situations. Reactive reasons concern circumstances where education has to respond to situations such as in countries where one of the official languages of the country or the language of the country or educational instruction differs from that of the learners. Educational policies and approaches therefore have to adapt to reduce failure rates due to language related deficiencies. In such conditions CLIL methodologies in teaching and learning can assuage language burden on children. The other instance where CLIL is given consideration is where proactive reasons such as improving language learning, developing social or personal aspects of education are identified and solutions sought. Here we come to what is considered a precursor to CLIL: immersion programmes in Canada which came about as a response to a need of English speaking families in Quebec.

In St. Lambert, Montreal, in 1965, a group of Anglophone parents wanted an educational programme at kindergarten level for their children so they would be competent in French. An experimental class of 26 students was established with the objectives that the children be proficient in speaking, reading and writing in French; reach normal levels of achievment throughout the curriculum and to appreciate French and English cultures of Canada. Immersion bilingual education then took off in Canada after this (Baker & Jones, 1998).

Programmes such as the Canadian immersion experience were considered by the European Commission [EC] in 1978. The EC aimed to have schools to teach in an additional language. In 1983, European Parliament required the EC to work on a new programme to improve the teaching of foreign languages. However, attempts to replicate the positive Canadian experience in the European context were ineffective (Marsh, 2002).

Moving forward to the 1990's the acronym CLIL was coined by David Marsh and became widespread. There were political and educational reasons for launching CLIL during 1994. On the political side, for freer movement across the European Union, a higher level and language proficiency was required. As for education, still influenced by the success of the Canadian immersion programme, practices to provide more and more students with higher levels of competence became necessary. The acronym CLIL was from this point widely used to describe education that integrated content and language (Hanesová, 2015).

It was not until 2005 when Marsh referred to CLIL as "a general 'umbrella' term for describing diverse methodologies encompassing dual focussed education with an emphasis on both the language and content" (Kovács 2014 as cited in Hanesová, 2015). Today, CLIL has evolved beyond the integration of content and language to include learning student learning strategies and thinking skills.

2.1.3. TYPES OF CLIL

Coyle (2005) notes that CLIL is flexible with differing models depending on contextual factors where learning focus and outcomes vary. Its flexibility can be seen in the following models:

1. Teaching a subject topic in the target language to explore the subject from a different point of view and at the same time improving foreign language skills.
2. Cross curricular projects with language teachers and subject teachers planning together.
3. Language teachers using more content when dealing with a theme.
4. Integrating the curriculum so as to study a topic from all perspectives.
5. Global projects where students study the same topics in different languages and compare results.

The most important aspect of CLIL is that there is not one way, as long as content and language are in some way integrated and content is used to lead the way (Coyle, 2005).

As we have seen CLIL has different forms. In the most general form, there are three kinds of CLIL: Soft, Modular and Hard. Language-driven CLIL, whereby teaching and learning are focused on the language, is known is Soft CLIL. Language learning is the main objective and so more subject based content is used than the average language

class. On the other hand, there is content-driven teaching and learning where the emphasis is on the subject. This is known as Hard CLIL and schools often use partial or total immersion in these cases (British Council, 2014). Modular CLIL can be found between Hard and Soft CLIL where the schools or teacher choose parts of the subject syllabus to be taught in the additional language (Bentley, 2010).

CLIL is a flexible approach as can be seen from the versions noted above. The question that arises therefore, is how schools and teachers know if they are doing CLIL. This brings us to the 4Cs which are the building blocks of effective CLIL.

2.1.4. THE FOUR CS OF CLIL

CLIL is set aside from other content based approaches by the use of the 4Cs framework. The four Cs represent Content, Communication, Cognition and Culture. They are interwoven and are the key to success in any CLIL lesson or class. Learning takes place by the integration of content and cognition and language learning by the integration of communication and culture (Coyle 2006).
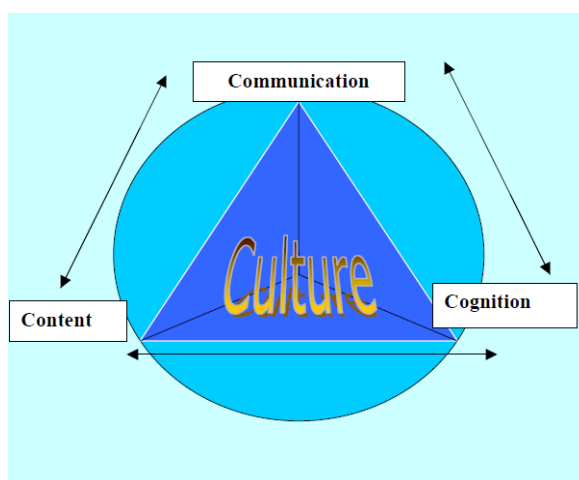
Figure 1. The 4Cs Conceptual Framework (Coyle, 2006)

2.1.4.1. Content

In CLIL it is the content that drives learning and it can be defined as the "progression in new knowledge, skills and understanding" (Coyle et al., 2006 p. 53). Content not only refers to the subject such as Biology, Mathematics or History, but also to cross curricular and integrated studies where links are made among different subjects. Content is what we want our learners to access rather than acquire and as such it cannot be separated from cognitive development and intercultural understanding

(Coyle, 2015). One aspect that sets CLIL apart from other content based methodologies is that content in CLIL is analyzed for its language requirements so as to be presented in a comprehensible manner (Bentley, 2010).

2.1.4.2. Communication

Communication is the second of the 4Cs and is summarized in Coyle et al., 2010 as "interaction, progression in language using and learning." When students can produce the target language, in both oral and written forms, the integrated nature of CLIL becomes clear (Bentley, 2010). When referring to language it is important to make the distinction between language learning which usually entails systematic learning of grammar, and language using which focuses on what needs to be communicated and learnt at the time (Coyle, 2015).

In CLIL lessons where language is used for communication and learning, it becomes clear that there are different types of language for different reasons (Coyle et al, 2010). To this end, there are three language dimensions which are brought together in the language triptych: language *of*, language *for* and language *through*.
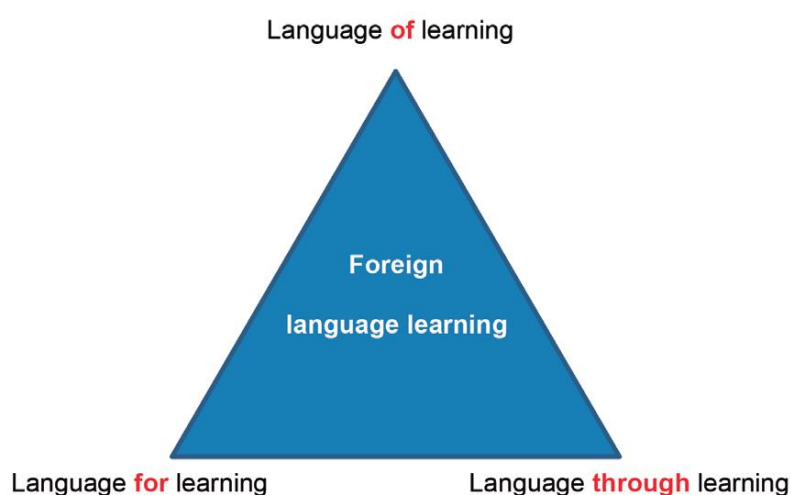

Figure 2. The Language Triptych (Coyle 2015)

The triptych is outlined in Coyle (2015) as containing:
- Language *of* learning relates to the language specific to the content of the subject. This includes specialized vocabulary, expressions and phrases that are obligatory when studying a particular subject or theme.

- Language *for* learning is all the classroom language needed for learning of content to take place. This includes language that is specific to certain tasks which are realized in the class.
- Language *through* learning is the language learners use to bring concepts together and communicate them. This language is more meaningful where students construct language from their knowledge not only from this subject or topic but also that transferred from their first language.

When discussing language in bilingual contexts, we must look at two concepts described by Jim Cummins (as cited in Bentley, 2010):

- BICS (Basic Interpersonal Communicative Skills) are the skills needed for social and conversational situations in the classroom when students need to interact in pair work, group work or with the teacher. This language is neither cognitively demanding nor is it specialized and it is closely related to the language for learning in the language triptych.
- CALP (Cognitive Academic Language Proficiency) is reflected when language becomes more cognitively demanding and academic. It is the language that corresponds to language that is used when learning of content takes place and is related to language of learning.

Teachers need to differentiate between BICS and CALP as BICS develops first and it may appear that the student has a good grasp of the language. However, it takes students who immersed in bilingual education two to five years to develop BICS and a further three years to CALP when they can realize academic study in the target language.

2.1.4.3. Cognition

CLIL not only develops linguistic abilities but because learning takes place in another language, it also impacts how we think (Marsh, 2000). The third C for cognition according to Coyle et al. (2010), is the "engagement in higher-order thinking and understanding, problem solving, and accepting challenges and reflecting on them." (p. 54). CLIL is based on a constructivist approach to education. Cognitive development refers to the way thinking is developed in stages as is shown in the revised Bloom's Taxonomy by Anderson and Krathwohl (2001). The understanding of content involves developing the student's "higher thinking and problem solving

skills" (Coyle, 2015, p.90). Thinking skills are classified into lower order thinking skills (LOTS) and higher order thinking skills. LOTS correspond to the cognitive processes related to remembering, understanding and applying. As we progress in cognition where more complex and higher order thinking is required, we find the processes of analyzing, evaluating and creating which are classified as higher order thinking skills or HOTS.

2.1.4.4. Culture

CLIL has many similarities with other approaches to bilingualism; however, what sets it apart is the role that culture plays. "Culture is at the core of CLIL" (Coyle, 2007 as cited in Bentley, 2010). This fourth C links the content, communication and cognition as it establishes the context in which learning takes place. Coyle et al., 2010 summarize culture as "'self' and 'other' awareness, identity, citizenship, and progression towards pluricultural understanding". Culture and language are inseparable and so to fully appreciate our pluricultural and plurilingual world, tolerance and understanding are essential. When learning through another language, student understanding of the world is heightened (Coyle et al., 2010). The cultural element of CLIL therefore prepares students for life, work and study in any context.

The 4Cs are the pillars of CLIL and the elements discussed here will be used to provide the framework for a lesson plan that could be used in Biology to demonstrate how to integrate language and content.

2.2. CORE FEATURES OF CLIL

Regarding the implementation of a CLIL programme, in addition to the 4Cs framework, there are six core features which are proposed by Mehisto et al. (2008):

- **Multiple focus**: this refers to the various aspects that must come together for successful CLIL. Language classes are not just about the language but must also support content in the same way that language must be supported in the content class. CLIL also encompasses the integration of several subjects which links to learning through cross-curricular themes and projects. A final aspect in the multiple focus of CLIL is the reflection on the learning process.
- **Safe and enriching learning environment**: this relates to the practices in the classroom which give students exposure to both content and language. This includes setting up routines, displaying content and language, allowing students

to experiment with both content and language, using authentic materials and in general creating language awareness.

- **Authenticity**: this feature is essential in CLIL where teachers make regular connections between learning and the students' lives and interests. Links with other speakers of the vehicular language and the use of up-to-date materials from various sources help students to learn and use the language using authentic methods.

- **Active learning**: this sees students taking a central role in their learning. The CLIL classroom is student centered with the students communicating more than the teacher and so the teacher has the role of facilitator. Students can actively participate in their learning process by helping to set outcome, working cooperatively and evaluating their own progress.

- **Scaffolding**: this feature is the way students are enabled to move forward in their learning process. Teachers use what students already know and are interested in to build on and challenge them to move forward by fostering creative and critical thinking.

- **Co-operation**: co-operation involves all collaboration that needs to take place for CLIL to work. CLIL teachers plan in conjunction with non CLIL teachers, parents learn more about CLIL in order to support their children and even the local community authorities and employers also get involved.

The core features are not only effective as part of a CLIL programme but are good teaching practice in general (Mehisto et al., 2008). These features are an effective bridge to bring together existing practices and CLIL in our proposal.

2.3. CLIL TEACHER COMPETENCES

This intervention proposal aims to implement CLIL into Biology classes with a view to improving motivation for language in 8th grade. Some initial teacher training in CLIL will be required. Marsh et al. (2011) defined eight competencies that should be taken into account in CLIL teachers' training programmes:

1. **Personal reflection** – In order to help a student develop cognitively, teachers need to reflect on their own development.

2. **CLIL fundamentals** – As mentioned in the previous section, the core features of CLIL are overall good practice in education, and must be included in the CLIL classroom.

3. **Content and language awareness** – Teachers need to be aware of the effect of language awareness on their teaching of content.

4. **Methodology and assessment** - Learning through an additional language is challenging and requires greater and meticulous scaffolding so as to facilitate significant learning.

5. **Research and evaluation** – A CLIL teacher needs to continue to learn by constant reflection and research to update teaching practices. Such evident reflection is a model for students to do the same with their learning processes.

6. **Learning resources and environments** – The enriched learning environment of CLIL drives students to become confident in experimenting with language, content and taking control of their own learning process.

7. **Classroom management** – The integration of the learning of content, language and learning skills require teachers to be knowledgeable of managing the CLIL classroom and allowing students to part of this process so as to gain the motivation needed for the cognitive load of CLIL.

8. **CLIL management** – CLIL necessitates stakeholders to collaborate so as to understand of each other's role because CLIL is not only about content and language teachers but also non teachers and administrators.

As with the core feature of CLIL, these competences give teachers embarking on the implementation of CLIL a view into the roles that they must adopt for successful CLIL.

2.4. CLIL IN COLOMBIA

In Colombia there are many bilingual schools which offer a variety of programs. There are those which are international bilingual, national bilingual and intensive English. Each of these meet certain criteria which place them in their respective category, International bilingual schools offer programs such as the International Baccalaureate where 50% of the curriculum is taught in a foreign language. National bilingual schools also offer 50% of their curriculum in English and their students are required to take an internationally standardized test such as TOEFL or IELTS upon graduation. Many schools on their way to bilingualism have intensive programs in English in which their students take 10 to 12 hours of English. More information is

provided in table 1 below which summaries the criteria for the different types of bilingual school in Colombia.

Table 1 Types of Bilingual Schools in Colombia		
International Bilingual Schools (Colegios bilingües internacionales)	**National Bilingual Schools (Colegios bilingües nacionales)**	**Intensive English Schools (Colegios inglés intensivo)**
Schools belong to international organizations. e.g., SACS (Southern Association of Colleges and Schools) or IBO (International Baccalaureate Organization)	Students take international exams when they graduate. E.g. TOEFL, IELTS	Students take language proficiency exams during the school years
Students have short stays abroad and most of their further studies are abroad	Most of the students' further studies are in Colombia	Most of the students´ further studies are in Colombia
More than 50% of the curriculum is taught in a foreign language	More than 50% of the curriculum is in a foreign language	Students take 10-12 hours of English, not necessarily including a core area like Science or Math
Many of the teachers are foreigners	Most of the teachers are bilingual Colombians	Most of the teachers are monolingual, except the foreign languages ones
Schools were founded by foreigners	Schools were founded by Colombians	Schools were founded by Colombians
Adapted from Mejía (2001).		

*Table 1. Types of Bilingual Schools in Colombia (*Mejía & Tejada, 2001*).*

The Colombian ministry of education introduced policies in law 115 (from 1994) which led to the establishment of the Colombian Bilingual Project (2004 – 2019) (Mariño, 2014). An expectation of this project is that school-leavers graduate with B1 level according to the Common European Framework of Reference for Language (CEFR). Such policies have paved the way for bilingualism and the increase in the number of these schools leads various policies relating to approaches and methodologies. A search for journal articles regarding CLIL in Colombia brought up several sources. CLIL Research at Universidad de La Sabana in Colombia was one of them but this research is targeted at tertiary level. In regards to CLIL in schools, there are journal articles such as Mariño (2014), "Towards implementing CLIL (Content and Language Integrated Learning) at CBS (Tunja, Colombia)" or McDougald (2015) "Teachers' attitudes, perceptions and experiences in CLIL: A look at content and language" which are frequently cited. Finding information on actual schools which have a CLIL programme has proven difficult.

2.5. SCAFFOLDING

Scaffolding is a core feature in the integration of content and language. When faced with content subjects through English, students are managing the process of learning new and demanding content with its own specialized vocabulary and have the additional challenge of assimilating this subject in the foreign language. There is no doubt that despite the excellence of the teaching method and the competence of the teacher in the subject, students will not fully benefit from content through a vehicular language if the language is not supported all throughout the course.

The term scaffolding is taken from construction vocabulary where it is defined by the Oxford Dictionary as a temporary structure on the outside of a building, made of wooden planks and metal poles, used by workmen while building, repairing, or cleaning the building (scaffolding, 2017). This term is used metaphorically in education to refer to the support we give to students to help them to build on previous knowledge during the learning process. This support as in construction is gradually taken away as the student gains independence and is capable of working without assistance.

The history of scaffolding lies in the work of Russian developmental psychologist Lev Vygotsky and in the later work of Jerome Bruner and colleagues. Vygotsky believed that children learned by interacting with the world around them. More knowledgeable others in a child's social environment are the key to learning and cognitive development. He saw that language was a valuable instrument through which learning took place both on a social and individual level due to the opportunity to organize knowledge with words (Burns & de Silva Joyce, 2005). Vygotsky developed the concept of the zone of proximal development (ZPD) which he defined as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers" (Vygotsky, 1978). Some key principles offered by Vygotsky to guide teachers through the process of supporting learning, as cited in Burns & de Silva Joyce, 2005 are:

- Individuals learn through interaction with peers through social interaction.
- Language is indispensable to cognitive development as it is used for thinking and doing.

- Skilled others facilitate learning.
- The support of skilled others allows learners to learn more than they would have on their own.
- As a learner's knowledge and skills increase so does their independence.
- Support can be gradually removed as learners succeed through their independence.

Figure 3 below is an at a glance illustration of how scaffolding helps students build on existing knowledge with the introduction of a new task which is beyond their ability to complete on their own. The introduction of scaffolding at this point leads to the construction of new knowledge.
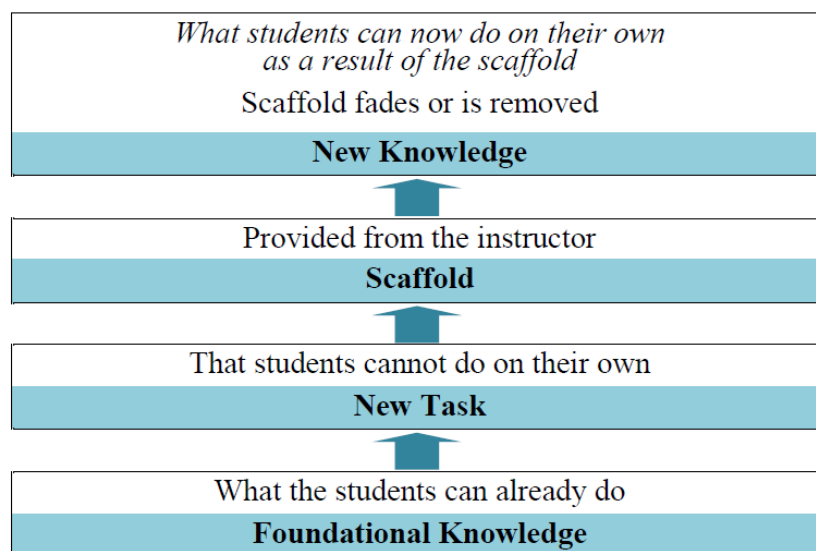
Figure 3. Illustrative Model of Scaffolding (adapted from Hogan and Pressley, 1997).

The terms scaffolding and ZPD are used interchangeably today, however, Vygotsky himself never used the term scaffolding; rather, it was coined by Wood, Bruner and Ross in 1976 (Burns & de Silva Joyce, 2005). Bruner defines scaffolding as the steps taken to reduce the degrees of freedom in carrying out some task so that the child can concentrate on the difficult skill she is in the process of acquiring (Bruner, 1978 as cited in Hammond and Gibbons, 2005). In other words, the task at hand must be kept challenging for learners to continue to be motivated to complete it.

Hammond and Gibbons cite three features of scaffolding:

- **Extending understanding**: this feature explains that teachers are able to challenge students and extend what they can do by sequencing activities and giving quality support and guidance. Learning occurs when students are urged to go beyond their existing abilities and they are able to internalize new knowledge. Mariani (1997) as cited in Hammond and Gibbons (2005) shows the effects of different combinations of teacher support and challenge in a framework of learning contexts.
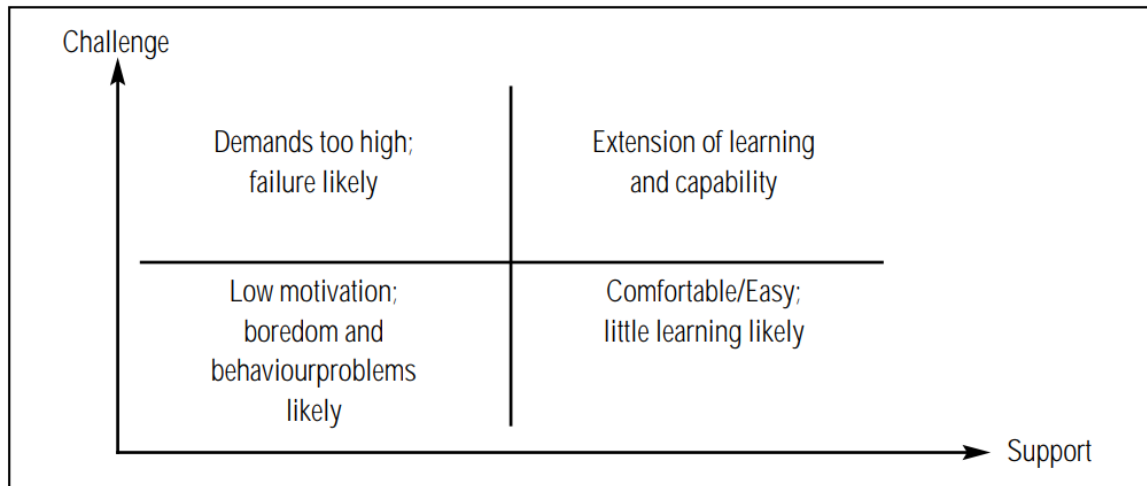
Figure 4. Framework of learning contexts, adapted from Mariani, L. (1997).

Figure 4 above illustrates four scenarios:

1. Students are provided with low challenging activities and low support. Here students are not likely to have motivation to learn which could lead to boredom and problems with conduct.
2. Students have the demands of highly challenging work with contrasting low support. It is probable that students would not succeed as such activities are beyond their understanding.
3. Low challenging activities given with high support would be too easy for students leading to a level of comfort that may be enjoyable but does not favor learning.
4. The ideal combination where learning is extended is in the zone of high challenge with high support where students are constantly in the ZPD as described by Vygotsky.

According to Vygotsky (1978) (as cited in Hammond & Gibbons, 2005) good learning is that which is ahead of actual development. Essentially, scaffolding is the ability to

take advantage of the two roles of the more knowledgeable other in supporting student learning and extending levels of understanding.

- **Temporary support**: A key aspect of scaffolding is its temporary nature. Teacher support is withdrawn little by little as learners become more capable of working on their own. To be effective, support must be well-timed and so teachers need to be aware of their students' capabilities by checking prior to starting an activity. Van Lier (1996) and Wells (1986) as cited in Hammond and Gibbons (2005) use the term contingency to refer to the customization of scaffolding where a teacher has to constantly adjust support not only according to the whole group's need but also to individuals. Van Lier, 1996 as cited in Hammond and Gibbons 2005, adds an important aspect of scaffolding: that thought which is unplanned is just as or even more valuable than that which is planned. He states that "even though it does not show up in lesson plans or syllabuses, this local or interactional scaffolding may well be the driving force behind good pedagogy, the hallmark of a good teacher."

- **Macro and micro focuses**: Scaffolding focuses not only on learners but also on tasks and activities. Teachers must have good knowledge of the curriculum and the demands of tasks. Scaffolding therefore needs to be approached from two levels: the curriculum (macro) and the classroom (micro).

Learning can be scaffolded using several strategies. Scaffolded instruction is "the systematic sequencing of prompted content, materials, tasks, and teacher and peer support to optimize learning" (Dickson, Chard, and Simmons, 1993 as cited in Larkin, 2002). This definition encompasses all this is required to successfully implement scaffolding in the classroom. Larkin, 2001, as cited in Larkin 2002, outlined eight essential steps that teachers who use scaffolded instruction use:

1. **Pre-engagement with the student and the curriculum** where the teacher selects task according to the curriculum goals and needs of the students.
2. **Establishing a shared goal** so that students feel motivated when they are involved in planning instructional goals.
3. **Actively diagnosing student needs and understandings** where the teacher is conscious of the students' knowledge so it is clear whether or not progress is being made.

4. **Providing tailored assistance** when the teacher uses and modifies techniques such as cueing or prompting, questioning, modeling, telling, or discussing as necessary.
5. **Maintaining pursuit of the goal** through encouraging students to stay focused by questioning and clarifying.
6. **Giving feedback** which helps students to become more aware of their own progress.
7. **Controlling for frustration and risk** by encouraging students to try alternative and take risks.
8. **Assisting internalization, independence, and generalization to other contexts** so students have more opportunities to work independently on tasks and rely less on teacher assistance.

Ellis and Larkin (1998) suggested a framework for integrating scaffolding throughout the lesson:

1. The **teacher** does the task by demonstrating what is required to the whole group.
2. The **class** tries the task where the teacher elicits information to continue to work on what the teacher has already begun.
3. The **group** works on the task in pairs or small groups to complete the task.
4. The **individual** practices the task independently.

The table below from Alibali (2006) shows a variety of scaffolds that can be employed as students work through a task. These can be employed for different levels of knowledge and at different stages as students progress towards mastering content.

Scaffold	Ways to use Scaffolds in an Instructional Setting
Advance organizers	*Tools used to introduce new content and tasks to help students learn about the topic:* Venn diagrams to compare and contrast information; flow charts to illustrate processes; organizational charts to illustrate hierarchies; outlines that represent content; mnemonics to assist recall; statements to situate the task or content; rubrics that provide task expectations.
Cue Cards	*Prepared cards given to individual or groups of students to assist in their discussion about a particular topic or content area:* Vocabulary words to prepare for exams; content-specific stem

	sentences to complete; formulae to associate with a problem; concepts to define.
Concept and mind maps	*Maps that show relationships:* Partially or completed maps for students to complete; students create their own maps based on their current knowledge of the task or concept.
Examples	*Samples, specimens, illustrations, problems:* Real objects; illustrative problems used to represent something.
Explanations	*More detailed information to move students along on a task or in their thinking of a concept:* Written instructions for a task; verbal explanation of how a process works.
Handouts	*Prepared handouts* that contain task- and content-related information, but with less detail and room for student note taking.
Hints	*Suggestions and clues to move students along:* ‖place your foot in front of the other,‖ ‖use the escape key,‖ ‖find the subject of the verb,‖ ‖add the water first and then the acid.‖
Prompts	*A physical or verbal cue to remind‖to aid in recall of prior or assumed knowledge. Physical:* Body movements such as pointing, nodding the head, eye blinking, foot tapping. *Verbal:* Words, statements and questions such as ‖Go,‖ ‖Stop,‖ ‖It's right there,‖ ‖Tell me now,‖ ‖What toolbar menu item would you press to insert an image?‖, ‖Tell me why the character acted that way.‖
Question Cards	*Prepared cards with content- and task-specific questions* given to individuals or groups of students to ask each other pertinent questions about a particular topic or content area.

Table 2. Scaffolding Strategies (Alibali, 2006)

2.6. PERSONALIZED LEARNING

Personalized learning is an area of education which has received much attention in recent years for its improvement in student attainment and at the same time its effect on different learner profiles. In attempting to define personalized learning, we find many definitions, explanations and even literature that begin with what it is *not*. In an electronic and physical search for personalized learning Sebba, Brown, Steward, Galton, & James, 2007 stated that "nearly all the references to personalized learning were commentary rather than empirical research, highlighting that there are limited studies providing evaluative data on personalised learning." There is much research

left to be done in this area. For the purpose of this dissertation, we will review the main features of personalized learning and discuss areas where it applies to CLIL.

The Gilbert Review (2007) as cited by Nationalcollege.org.uk, 2017 defined personalized learning in the following terms:

> ...personalising learning and teaching means taking a highly structured and responsive approach to each child's and young person's learning, in order that all are able to progress, achieve and participate. It means strengthening the link between learning and teaching by engaging pupils – and their parents – as partners in learning.

West-Burnham (2007) states fives components of personalized learning in online learning resource "Leadership for Personalising Learning":

1. **Learning how to learn** empowers learners to be able to guide their own learning by developing the skills necessary to manage their time and studies. Students need to be provided with various learning strategies so as to choose the ones which suit their learning style the best. In general, strategies for learning how to learn will include the elements to become independent learners. Students need to acquire their own learning style which includes managing their time, learning how to research, analyze and becoming metacognitive so as to review and reflect on their own work.

2. **Assessment for learning** (AFL) in personalization is formative and summative and also includes assessment as and for learning. Students in AFL have a say in what and how they are assessed in an environment where feedback is essential for progress. This is about supporting deep learning, showing how students understand the topic by being actively engaged and linking what they already know with new knowledge so as to use this for future planning. Formative assessment encompasses self, peer assessment, computer-based, internal teacher and external accredited assessment. Such strategies allow students to deeply understand their own progress. Teachers can use this information to personalize classes by having detailed knowledge if student strengths and weaknesses. They can organize the class into groups so students can work together on the areas they

need support in or have extra challenges in those they can excel in thereby accomplishing their personal goals.

3. **Teaching and learning strategies** are based on facilitating learning of the individual. Teachers need to be clear in the what, how, when and where or learning. Personalization is not about learner control but rather about informed choices so as to achieve desired outcomes. Therefore in a personalized environment teaching a whole group might be extremely effective and at other times focusing on the individual provides more benefits. To fully embrace personalized learning, learning strategies need to be challenging and motivating. Students need to see that what they are learning is relevant and so they will be use creativity and innovation to build new knowledge.

4. **Curriculum choice** is perhaps one of the most difficult elements in personalizing learning. A set national curriculum and standardized state testing can make the decision about what to study impossible. Some ways to overcome this can be to allow students to focus on themes and ideas instead of working through the curriculum. Integrated and cross curricular approaches can also give students a choice as to what they learn. Each student can have their needs met by project based approaches that have not only academic but also social outcomes.

5. **Mentoring and support** are intrinsic to personalized learning. Mentoring is a long term, one to one relationship where the focus is on the needs of the learner. The learner is both supported and challenged. In order to work, academic progress and development are mentored. Learning to learn strategies are put into place and review and reflection enhance learning. In addition to teacher and adult mentoring, the importance of peer mentoring can also be highly effective where students can truly see how their learning is progressing.

Järvelä (2006) addressed vital questions related to personalisation in her paper "Personalised Learning? New Insights into Fostering Learning Capacity". She views personalisation as "an approach to in educational policy and practice whereby every student matters, equalising opportunities through learning skills and motivation to learn" (Järvelä, 2006, p. 31). Järvelä states that the changing world, changing social relationships in addition to new technology and more flexible ways of learning have made personlised learning a prospective approach to meeting the requirements of not

only education but also work in the future. Järvelä analyzes seven critical dimensions in which personalized learning can be a influential instrument.

1. **Development of key skills** where the construction and sharing of knowledge are essential for learning. These processes entail the enhancement of higher order knowledge and skills necessary to sort out facts in information as well as to produce texts and multimedia. When learning is personalized students can use conceptual and factual knowledge meaningfully and authentically.

2. **Levelling the educational playing field through guidance for improvement of students' learning skills and motivation** means that students should taught analytical and thinking skills in addition to learning strategies. Strategic learners are more aware of themselves and are able to make connections and use their existing knowledge to build new knowledge through metacognition.

3. **Motivating learners** leads to increased value placed on learning. Students are able to appreciate what they are learning and thus improve their cognition and motivation.

4. **Collaboration in knowledge-building** refers to the preparation of students for socially orientated activities. Individuals first need to have developed their own cognitive processes in order to be able to effectively collaborate in a team. Pedagogical models such as progressive inquiry, problem-based and project-based learning though require much more research in relation to personalized learning, encourage students to learn by doing and exploring and solving world problems.

5. **Development of new models of assessment** in personalized learning first require that we ask about what learners understand about their studies, how they can generate information from what they are learning, what is to be evaluated and does formal and informal assessment have any relation. Examples of new assessment modes necessary for personalized learning are authentic assessment, performance assessment and portfolios.

6. **Use of technology** has many benefits on the individual and social level. Communication is changing rapidly and with this comes new forms of

participation which has implications for education. ICT makes learning more authentic and so more interesting to students. The use of mobile devices is a reality in the classroom today in the future though a challenge, they will be used for pedagogic purposes both in and out of the classroom to build learning communities.

7. **New roles for teachers** have implications for teachers who will need to examine their communication and collaboration skills. Constant reflection not only on learners' but also their own activities is required. As they are key to personalized learning, teachers need to extend their learning and become part of learning communities.

In conclusion Järvelä sees personalization as way to improve expertise in the knowledge society. Students become more interested and curious about their learning and develop improved learning strategies.

This intervention proposal seeks to foster personalized learning through CLIL and so we need to show how the core features of CLIL (Mehisto et al., 2008) are closely related to the three aspects of personalized learning: singularity, openness and autonomy as described by Garcia Hoz (1988).

Singularity in personalized learning promotes student reflection on their learning process (*multiple focus*) which leads to increased language awareness (*safe and enriching learning environment*). Student interests are catered for as they make connections with their own lives (*authenticity*). Singularity builds on what students already know and have experienced, takes into account their learning styles and encourages creative and critical thinking (*scaffolding*).

Openness sees increased student talking time surpassing that of the teacher (active learning) as they work with their peers more and negotiate meaning and content with their teacher (cooperation).

Autonomy is achieved when students evaluate how well they have accomplished their learning outcomes (*active learning*). They then make the decision to move forward to the next task (*scaffolding*).

Openness and autonomy are present when student confidence is increased to the point where they want to experiment with language and content (*safe and enriching learning environment*), ask for language help when necessary (*authenticity*) and help to decide in learning outcomes (*active learning*).

In our teacher training sessions we will use this connection between personalized learning and the core features of CLIL to create a framework with which to help the teacher and students work on a personalized plan for the class.

3. INTERVENTION PROPOSAL

The intervention proposal we have planned is detailed in the following section where we describe how the implementation of CLIL can personalize learning as well as improve student motivation for studying Biology through English.

3.1. AIMS OF THE PROPOSAL

We propose to implement a way of using the CLIL approach to ensure language support in 8th grade Biology and to foster personalized learning. This proposal has two aims: using an existing plan for a Biology class as a base for a CLIL lesson plan where language is supported and also to use knowledge of students' English level as well as their areas of interest to personalize learning in order to maximize the effectiveness of CLIL in Biology.

3.2. EDUCATIONAL CONTEXT AND/OR TARGET GROUP

San Bonifacio de las Lanzas School is a national bilingual school which was founded in 1985. It provides bilingual education from preschool to 11th grade. In addition to English Language and Literature classes, Mathematics, Science (Preschool and Primary) and Biology are taught in English. The school is structured into Preschool, Primary and Secondary sections however within these sections four cycles exist: the Initial (Transition to 2nd grade), Conceptual (3rd to 6th grades), Contextual (7th to 9th grades) and Projective (10th and 11th grades) cycles.

As a national bilingual school, San Bonifacio de las Lanzas School is obligated to prove that their students graduate with an English level of B2 and above. Upon graduation

students take the Cambridge/IDP IELTS exam. As a path to this exam, students also take the Cambridge English Language Assessment Key English Test (KET) in 5th grade and the Preliminary English Test (PET) in 8th grade.

In 7th - 9th grade students have English Language, Literature, Mathematics and Biology in English. These grades belong to the contextual cycle of Secondary School and are the last cycle to have content subjects taught in English. When students move to the Projective cycle, they have only English which encompasses instruction in English Language and Literature. The reason for this change is the school's decision to focus on exam preparation for the Colombian State test known as *Prueba Saber 11* which tests Critical Reading, Mathematics, Natural Sciences, Social Sciences, Citizenship and English. The test is in Spanish with the exception of the English section, hence the decision of the school to change instruction in Mathematics and Biology to Spanish.

The school follows the Teaching for Understanding Guide developed by Tina Blythe (1998). Lessons plans are developed using a framework which contain the ensuing elements as summarized in ("What is Teaching for Understanding?", 2017):

1. Generative topics which are central to the subject encourage students to think about the topic and make connections with their own lives.
2. Understanding goals where goals are broken down by units and made part of primary yearlong goals.
3. Performances of understanding happen throughout the year as students carry out activities which develop and show their understanding. These become more complex as the year moves on.
4. Ongoing assessment is connected to performances of understanding where feedback is given along the units. Students are made aware of assessment criteria and have the opportunity to reflect on their understanding.

In addition to Teaching for Understanding the school curriculum also embeds Authentic Performances which are "communicative actions or processes performed in specific contexts by people who use their constructed knowledge in their daily or professional life when acting as learners or as experts to fulfill real-life purposes." (Ordoñez, 2011). Teachers and students are constantly building on previous knowledge and connected topics and activities to real life.

In addition to these approaches Biology and Mathematics in English are taught using a content-based approach where topics are covered in English by Colombian teachers. As with most bilingual schools, the use of L1 in the classroom is frowned upon though not strictly followed up on. What happens in some cases is that scaffolding is done in L1 with little or no planning for language in the classroom. The implementation of the CLIL approach that will integrate both content and language will greatly benefit the bilingual process at the school.

Implementing the content and language integrated learning approach in the contextual cycle, which are grades 7 to 9, will see language integrated into classes as English will move from being the language of the textbook to the vehicular language which students must use to access the content. Integrating language into classes will see language being taken into account in lesson planning. Students will have less need to use L1 with English well-scaffolded in lessons. Due to the period of time allowed for this dissertation we have decided to design this intervention proposal for 8th grade Biology. Mathematics was not opted for as we thought that Biology offered more opportunities to study how the language was used in the classroom.

3.3. TIMING

The class observation and student survey information was collected in two class sessions in June, 2017 during the closing of the second academic period of the school. The teacher survey was done in the same month when the teacher completed the survey in her own time taking only two days to return it. The intervention proposal plan will require training sessions which include those with the Biology teacher, English teacher and two class sessions.

3.4. METHODOLOGY OF THE PROPOSAL

The first step will be to investigate how the subjects are being taught in English. It will be necessary to find out whether any attention is given to the language or if the subject is taught in English until someone does not understand something or whether the teachers switch to Spanish when they consider a topic to be too difficult – on either part. It is also very important to see which strategies are used that already fit into the CLIL approach that could provide a springboard for changes to be made.

Teacher attitude towards change will also be another important factor as teachers are often wary of anyone, especially anyone not in authority, observing their methods. Their English level will need to be verified, not only on paper, but also in how it is used in the classroom.

Teachers will need to be introduced to the CLIL approach. It is important to understand the 4Cs framework as well as the CLIL teacher competences. Only then will they be able to appreciate the benefits of CLIL.

Implementing CLIL also involves the language teachers so from the beginning of the process the English teachers will also need to be involved in any initial investigation and training. The way they approach their English classes is also essential to the process as this is where the use of English is a must.

Student attitude to content classes in English as well as to their general English classes is also a key aspect of this intervention proposal. It is important to hear what the students think about taking Biology in English. Their opinions on the classes taught in a mix of Spanish and English are also essential to the proposal.

The second part of this intervention proposal is that of fostering personalized learning through CLIL. As with CLIL, both teacher and student attitudes need to be investigated. How far a teacher is willing to go in order to make sure each student is given the necessary support to be more autonomous in their learning process is key for personalized learning. The student must also see the advantages of such an undertaking and their ability to become an autonomous learner.

3.4.1. SURVEY RESULTS AND FINDINGS

Several surveys (Annexes III – V) were designed and carried out in order to collect data on teachers and students. Annex II was used to record observations made during the classroom visit. In this section we will summarize and show our findings. First, in order to put the class in content, a brief profile of the students is given, followed by the results of their surveys. The class observation and finally, the surveys of the Biology and English teachers are then presented.

3.4.1.1. Student profile

The 8th grade students have 33 hours of class per week. A total of 15 hours are spent on subjects taught in English equally divided among Mathematics, Biology and English. The students have a mixed level of English which was recently measured based on a mock test of the Cambridge Preliminary English Test for schools (PET). PET measures English levels at the B1 level of the CEFR ("Preliminary English Test (PET) | British Council", 2017). They will take the real exam in October, 2017 as part of the school's proficiency testing English. The results of the mock test are displayed in figure 5 below.
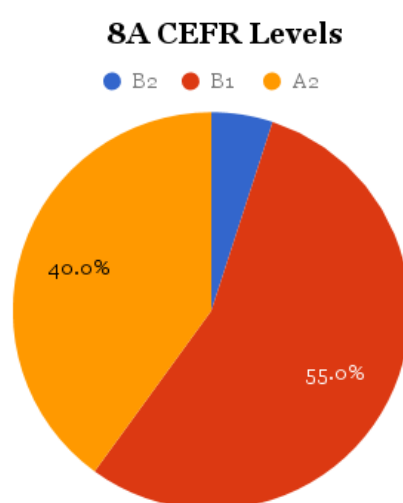
8A CEFR Levels

● B2 ● B1 ● A2

Figure 5. 8A CEFR Levels (source: unpublished PET Mock 8A)

As the figure shows, 55% of students are in the B1 level and 40% at A2 level. Only 5% which represents one student is above the expected level at B2. Such a mixed level class provides opportunities where students can benefit from personalized learning.

3.4.1.2. Student Surveys

A total of 20 students answered the survey. This was carried out during an English class session. They were free to answer as they pleased, the only intervention took place when they were not sure of a meaning of a word or question. Such questions were answered by the English teacher.

Question 1 checked how long students have been studying English. All 20 students responded and the results were categorized into less than 6 years, 7 – 9 years and more than 12 years with 2, 6 and 12 students in respectively in each category.
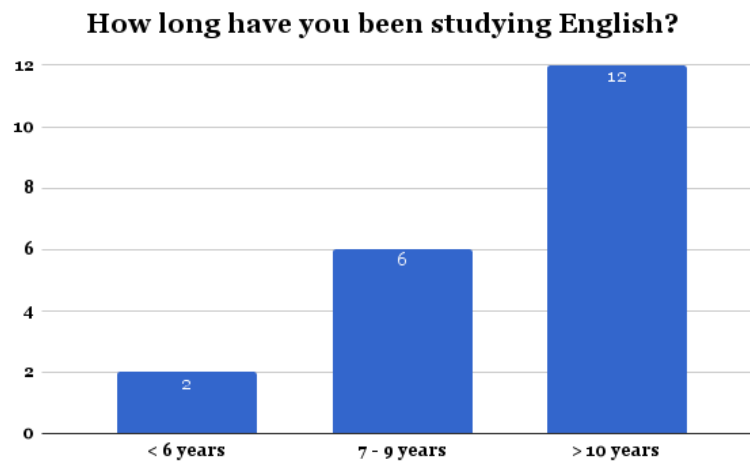
How long have you been studying English?

Figure 6. Question 1 (Source: Student Survey Annex V)

The majority of the students have been studying English for more than 10 years. This 60% are those who have studying English at the school since they entered at 5 years old. This leaves us with the question as to why so many of these students have not arrived to B2 level after all these years.

Question 2 asked whether the students enjoyed learning English which is valuable information in seeking a way to get students to enjoy language learning whether in English, Mathematics or Biology class. All 20 students answered that they enjoyed studying English though their attitudes do not show this. Their reasons given show that perhaps even if they do not truthfully enjoy it, they realize that it is important in some way.
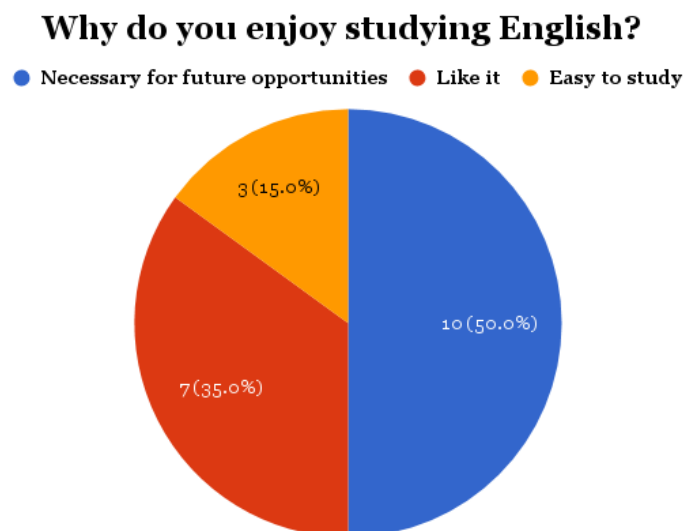
Why do you enjoy studying English?

Figure 7. Student Survey Question 2 (Source: Student Survey Annex V)

The explanations given for enjoying studying English were summarized into three categories: that it was necessary for the future, they like it or that it was easy to study. Any of these reasons serve as a stepping stone to getting students more involved in their language learning.

Question 3 explored the advantages and disadvantages of studying subjects in English. Here the students volunteered several reasons for which the advantages outweighed the disadvantages. In fact, the only disadvantage given was that it was difficult with one student explicitly stating that there were no disadvantages. The pros to content in English were that they produced the language, learned how to communicate and that English was useful.

Question 4 asked whether students spoke English at all times in Mathematics, Biology and English classes. Consistent with the classroom visit, a majority of 60% of students admitted that they did not speak English at all times. Only 4% claimed that they did. Their reasons for not speaking English at all times or sometimes give us important information that will guide us in our understanding as to why we observed little use of English in class and what can be done to help improve this.

Do you speak English at all times in Mathematics, Biology and English classes?
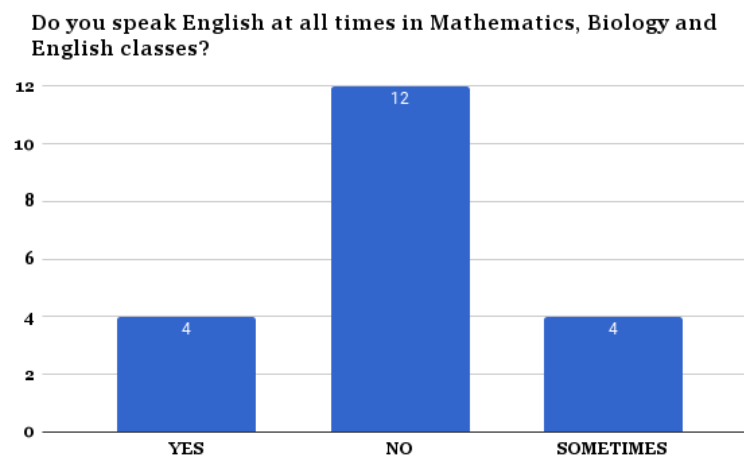
Figure 8: Student Survey Question 4 (Source: Student Survey Annex V)

Question 5 follows on from the previous question going deeper into exploring if they thought it was necessary for you to speak English at all times in Mathematics, Biology or English classes. Students were evenly divided on this topic. The reasons given for it being necessary to speak English fell into four categories:

1. Content is in English
2. Helps to improve pronunciation
3. Helps to improve overall English level
4. Helps to improve vocabulary

In contrast, those who did not think it was necessary cited reasons classified as follows:

1. Mathematics is independent of language
2. Prueba Saber is in Spanish
3. They understand better in Spanish

Questions 6, 7 and 8 deal with comparing English classes to the subjects studied in English and whether students have awareness of a difference in their attitudes towards the content in English and English class which may help to boost their motivation for learning in English. When asked in question 6 how their Mathematics and Biology classes in English differ from English Language class students had a variety of answers which are summarized in the table below:

	Biology & Mathematics	**English**
Study the language		20%
Speak English		25%
Learn about different topics	60%	15%
Learn the language		50%
Practice the language	20%	
Speak Spanish	20%	

Table 3. Student Survey Question 6 (Source: Student Survey Annex V)

Overall, the majority of students appreciated that they learn new topics in the content classes as they learn the language in English class. It is notable that 20% of students stated that they spoke Spanish in content classes.

Looking further in **question 7** where students were asked if they preferred their content classes which are taught in English or English classes, 55% of students said they preferred Biology and Mathematics classes over English classes. Reasons for favoring content were that these classes were interesting where they learned about the

subjects and were able to practice English in a different context. Those who chose language class cited that English class was easier, more dynamic and they are able to clarify doubts about the language.

Question 8 looked at students feeling about studying content in English as they were asked directly of they thought they would understand these subjects better if they were in Spanish. Students did not elaborate much but the results show that this was not a clear yes or no question to the students.
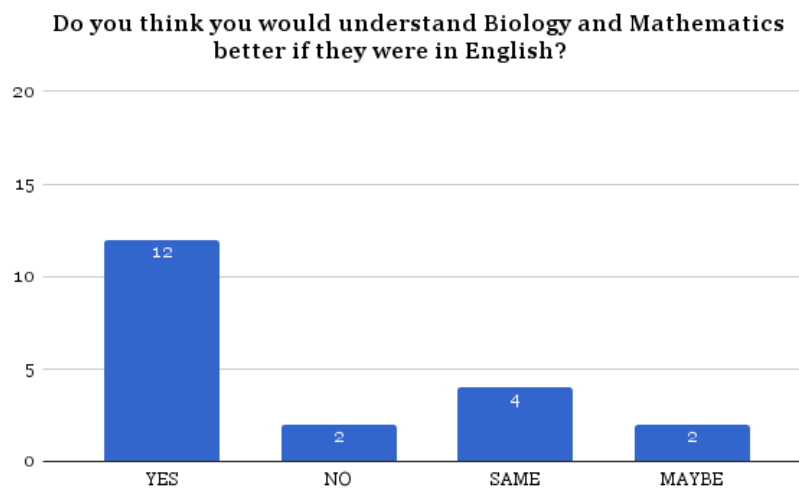

Figure 9. Student Survey Question 8 (Source: Student Survey Annex V)

Though students were not asked for reasons, 14 students gave them. Half of these stated that Spanish was their native language so it would be easier to study in their language. Two students noted that they understood Biology in English better than they did Math and three students thought that it was better to learn in English as they learned more.

Questions 9 to 15 require more student reflection on their learning. Question 9 explores what happens when students do not understand something that is in English in their content classes. 16 students offered responses as to what they did when they did not comprehend something. Ask the teacher to explain was reported by 7 students, 5 students said they would ask for an explanation in Spanish, 3 would look on the internet and only one student noted that they would ask the teacher to give an example. As for what the teacher does, 10 students answered with 6 students stating that the teacher would try to explain and 4 said that the teacher would translate into Spanish.

Question 10 asked students to consider if they would benefit from language support. The results are clear that most students thought this was necessary.

Do you think you would benefit from language support in
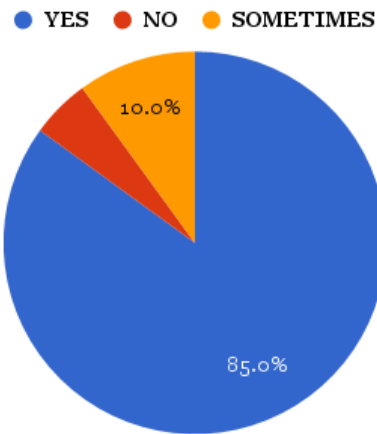Mathematics and Biology classes?

● YES ● NO ● SOMETIMES

10.0%

85.0%

Figure 10. Student Survey Question 10 (Source: Student Survey Annex V)

Question 11 explores students' thoughts on their ability to work autonomously. Of the 20 students, 35% responded that they were autonomous learners, 30% thought they were not and 35% said that they were able to work on their own sometimes. Reasons for their responses are summarized in Table 4 below.

YES	NO	SOMETIMES
Try to learn on my own	Prefer learning in Spanish	Use books and internet
Pay attention in class	Learning is boring	Need help sometimes
Learn English by myself	Do only what is required	Use the internet
Responsible	Need teacher help	

Table 4. Student Survey Question 11 (Source: Student Survey Annex V)

Following on from question 11, students were asked if they would like to work more autonomously and what they would need from their family, friends and teachers. 35% of students stated that they would not like to work more autonomously because they could not change their habits, needed the help of a teacher or actually liked being taught everything. Assistance needed to be more independent learners given by 65% of the group were more extensive and are as follow:

1. Teachers need to allow them to work alone
2. Friends could speak English
3. Focus in class
4. Teacher support and advice
5. Interest from family
6. Believe in oneself
7. Workshops
8. Materials
9. Motivation

These responses point towards student awareness of their learning process and the necessary assistance to become more autonomous learners which will be useful when implementing a personalized learning plan.

When asked how their English teacher can help them with language skills needed for content classes 30% of students responded that they did not need any help. 25% would like help with grammar and vocabulary, 15% with pronunciation, another 15% with presentation skills and 5% thought general English practice would be useful. One student did not answer.

Question 14 asked how ICT tools could help them to become more autonomous learners. Having more access to language exercises and tutorials as well as being able to learn on their own independent of the classroom were the two most given suggestions with 35% of students each. The remaining 30% of students thought that ICT tools were a distraction or had no idea how they would help.

The penultimate question asked if students thought they were motivated to learn English and their reasons. The majority of the students said that they were with only 20% stating otherwise. Roughly 80% of motivated students cited that they saw the benefits in learning English. The remaining students responded that they liked English. Those that were not interested in learning English said it was boring and useless to them.

Finally, when asked whether they would like to have more subjects in English, 75% of students did not wish for this and those who did would like to have ICT, Social Studies or Philosophy.

This survey information gives us insight into student attitude in order to propose suitable strategies to personalize their experience in Biology class and help them to improve their language skills.

3.4.1.3. Class observation

Class 8A was observed on June 14th, 2017. At this stage in the term, the class was presenting their synthesis project which is their final assignment for the term based on what they have learned through the term. Students studied the sensory receptors and for the synthesis project they were given a disease of one of these to present in pairs. Each pair had 10 minutes to present whilst the rest of the class listened. The class was organized in a semi-circle facing the smart board. The teacher sat at a desk within the semi-circle at the back of the class with the students presenting at the board.

The students presented their synthesis projects in English; however, that was the only English spoken in the class. All communication directed towards the teacher was done in Spanish and there was no observation of BICS as the students constantly spoke in Spanish whether about the presentations or socially to each other. Students showed excellent use of CALP using Biology terms with ease and conviction. It was clear that they understood their content very well. It was noticeable that though the students used academic words accurately and in context, their pronunciation of those words was often inaccurate. This occurred in students who had good command of BICS as well as those who did not. The audience at times offered spontaneous correction of everyday vocabulary that was mispronounced or not correctly used, however not one correction on academic words was volunteered neither by students nor the teacher.

Interaction between students was limited in this class due to the activity being covered that day. Students were to either present or observe presentations. In reality though, apart from the two presenting at any given time, most students were either busy preparing for their own performance or moved on to other activities once they were done. There was variable interest in the expositions with only two or three basic questions asked at the end of each.

Regarding teacher use of the language, the teacher spoke to the students in English at times but often repeated what was said in Spanish when they did not pay attention or did not seem to understand. A few short questions were asked at the end of some presentations with students giving concise answers in English. It was clear that the students knew that they had to cover the content of the class (the presentation and Prezi) in English, however the teacher did not request or require the use of English

otherwise. When students had doubts and approached her between presentations, all interaction was done in Spanish. In general, there was not much language awareness in the class. Neither the teacher nor the students, apart from content words, seemed to put any effort into using English.

Overall this was a positive experience as the students are familiar to us in the English classroom where the observed attitude toward English class by most has been disinterest. In this class they presented in English without reverting to Spanish during the presentation and were focused on their content which they were clearly interested in. This gives us a great starting point to begin to personalize classes and integrate content and language.

3.4.1.4. Biology Teacher Survey

The beginning of this survey collects information to gain insight into the profile of the teacher. She is a native Spanish speaker with a B2 level of English (based on IELTS test score) who has been teaching for 18 years with 15 of those in English. Her responses are transcribed below.

1. What methodology do you use when teaching content in English? _Questioning and problem solving._
2. What are the benefits of this methodology? _The students are active participants in their own learning._
3. Are there any aspects that can be improved? _Student autonomy_.
4. What forms of communication do you use with your students in the classroom? _Verbal and visual._
5. What are the advantages and disadvantages of teaching content in English? _Advantages: improve the language and fluency. Disadvantages: student participation is limited._
6. Do you think that you need training in teaching content in English? _No._
7. Are you familiar with CLIL (Content and Language Integrated Learning)? _No._
8. Would you like to know more about CLIL? _Yes._
9. Are any of these aspects present in your classes:

   Content ✓   Communication   ✓

   Cognition ✓   Culture   ✗

10. If they are, which one is the focus for you? _Cognition and content._

11. Do your students use basic interpersonal communication skills (BICS) in the classroom? _Yes, they do._

12. How do you help them to develop cognitive academic language proficiency (CALP)? _Planning challenging and interesting performances._

13. How do you promote critical thinking in the classroom? _Letting them inquire about topics that are of interest to them._

14. Do you include elements of culture in your lesson plans? _No, I don't._

15. Do you include language objectives in your lesson planning? _No, I only include Science objectives._

16. Do you think it is necessary for students to speak English at all times in your class? _No, I think sometimes you can use the native language._

17. Are all written assignments in English? _Yes._

18. How do you support language in the classroom? _Through the use and application of scientific concepts in English._

19. When students do not understand content in English, how do you support them? _Making personalized explanations using scientific vocabulary and everyday life examples._

20. Are you familiar with the term personalized learning? What do you think it means? _No, I am not. I think it is a methodology focused in autonomous and individualized learning._

21. Do you consider your students to be autonomous learners? Explain. _I think some of them are autonomous but most of them always expect the teacher's orientation._

22. Do you motivate your students to learn English? If so, how_? Yes, trying to show them the importance of it in everyday life._

23. From your point of view, what are your students' attitudes towards Biology in English? _I think they like it, especially those who plan to study medicine and have greater motivation._

24. Do you think studying Biology in English is beneficial to students? _Yes, I do._

25. Would you like to make any other comments about your experience of teaching content in English? _It is very challenging and interesting because there are new things everyday so we are always in continuous learning._

The answers given in this survey show that the teacher knows her students' strengths and weaknesses. She is aware that her students though they enjoy the subject, need to work more autonomously. Those who fully embrace the subject are those who are

motivated intrinsically by their plans to pursue careers in medicine. Regarding the language, this teachers sees the benefits of learning in English however, a further step needs to be taken to fully embrace this by consciously incorporating language objectives and scaffolding in the classroom. CLIL and personalized learning will help this class to realize their potential in learning content through English.

3.4.1.5. English Teacher Survey

As with the Biology teacher survey, the beginning of this survey collects information to gain insight into the profile of the teacher. The English teacher is a native Spanish speaker with a C1 level of English (based on IELTS test score) who has been teaching English for 10 years and also speaks French (level unknown). Her responses are transcribed below.

1. What methodology do you use when teaching English? *Usually communicative language teaching is one of my methodologies.*
2. What are the benefits of this methodology? *This methodology enables students to communicate effectively in different situations such as inviting, suggesting etc.*
3. What topics are covered in your English classes? *Main topics that are assigned according to the unit plan (grammar, reading strategies etc.) and ongoing news.*
4. What forms of communication do you use with your students in the classroom? *Verbal, body language, gestures, signs.*
5. What are the advantages and disadvantages of teaching English as a foreign language? *Advantages: lifelong learning, updated information. Disadvantages: dealing with fossilized errors.*
6. Have you ever taught a content subject (e.g. Mathematics or Biology) in English? Specify. *No.*
7. Are you familiar with CLIL (Content and Language Integrated Learning)? *No.*
8. Would you like to know more about CLIL? *Yes.*
9. Are any of these aspects present in your classes:

    Content   ✓   Communication   ✓
    Cognition   ✓   Culture   ✓
10. If they are, which one is the focus for you? *Communication.*
11. Do your students use basic interpersonal communication skills (BICS) in the classroom? *Yes, they are encouraged all the time, sometimes it is accompanied by gestures.*

12. How do you promote critical thinking in the classroom? *Through the use of journals, news analysis and metacognitive activities.*

13. Do you include elements of culture in your lesson plans? *Yes, sometimes we discuss cultural issues in class or in the synthesis project.*

14. Do you include content objectives in your lesson planning? *Yes.*

15. Do you think it is necessary for students to speak English at all times in your class? *No, sometimes useful information is missed or misunderstood in an attempt to be expressed in English.*

16. Are all written assignments in English? *Yes.*

17. How do you support language in the classroom? *Gestures, visual aids, reinforcing ideas by asking students.*

18. When students do not understand something in English, how do you support them? *Paraphrasing, body language, synonyms.*

19. Are you familiar with the term personalized learning? What do you think it means? *The fact of having class with few students.*

20. Do you consider your students to be autonomous learners? Explain. *Not yet. Students are still in the process of autonomous learning, they have adopted some strategies but not 100%.*

21. Do you motivate your students to learn English? If so, how? *Sharing motivating factors such as communication while abroad, career prospect improvement, working life.*

22. From your point of view, what are your students' attitudes towards English? *Some students seem to enjoy learning English, some others show indifference.*

23. Do you think studying English as a subject is beneficial to students? *Undoubtedly, students get benefits having the chance of studying a second language as it's the lingua franca students can explore the entire world.*

24. Would you like to include any content in your English class (e.g. Mathematics or Biology?) *Maybe some Biology.*

25. Would you be willing to work alongside a content teacher in order to support English? Explain. *Of course, sometimes the lack of understanding leads to not assimilating content.*

From these answers we can see that the English teacher is flexible with her students, allowing them ample opportunities to communicate in her class. Though the CLIL approach is not followed at the school, she has used the elements of the 4Cs

framework and knows that students often do not understand everything that is told to them in English which is valuable motivation to scaffold language.

3.5. SESSIONS AND ACTIVITIES

The proposal will require the involvement of the Biology teacher, English teacher and 8th grade students. Three sessions are proposed for the Biology and English teachers to introduce the concept of CLIL (4Cs framework, teacher competences, core features) and personalized learning. A session to construct a CLIL unit plan with the Biology teacher and one week to carry out this unit plan.

3.5.1. Teacher Training Session One

When introducing CLIL to those who are new to concept there is much information to be covered. As mentioned in the methodology, we intend to use existing practices are a foundation for this intervention proposal. As part of the school's ongoing teacher training, the teaching staff are all familiar with constructivism and the work of Vygotsky, the concept of scaffolding, Bloom's Revised Taxonomy and authentic performances. Videos which are already widely available online and explain the concepts concisely and graphically will be employed in these sessions. Exercises from "The TKT Course, CLIL Module" (Bentley, 2010) will also be used to check understanding. The training sessions involve the English teacher for several reasons: for a discussion partner, language point of view, possible implementation of some CLIL elements in the English class and for future collaboration. For the purpose of class reflection it is possible to use the literature part of the English classes as content material.

Session 1: 100 minutes **Attendees:** Biology and English Teachers	
Goal: To introduce the basic elements of CLIL (4Cs), CLIL teacher competences.	
Topics	**Activities**
What is CLIL?	Ask teachers to take a guess as to what the acronym stands for. Watch: (inspireducation, 2017). Discuss, the 4Cs that are already present in your classes (expected responses: culture relates to authentic performances, cognition – goals and levels of performance planned using Bloom's Taxonomy, content and communication in English)

	Introduce the concepts of BICS and CALP. View four sets of materials (Bentley, 2010, p.8-9) and discuss which ones are from ELT books and which are from CLIL books (Annex VI).
Examining Communication – the language triptych.	Show figure 2. Discuss what language of, for and through might mean. Watch part of (Florit Ballester & Alberich Carramiñana, n.d.) Give examples from your subject.
CLIL teacher competences	Complete the worksheet (Annex VII) on the competences and discuss what it means to be a CLIL teacher.

Table 5: Session one: Introduction to key elements of the proposal

3.5.2. Teacher Training Session Two

In the second teacher training session, we will discuss the core features of CLIL and personalized learning. Scaffolding has been part of in-house teacher training at the school so it will be briefly discussed with a focus on how to scaffold language. Teachers will begin to connect the two and bring this into the classroom by planning strategies they would use to personalize learning in 8th grade Biology.

Session 2: 100 minutes **Attendees:** Biology and English Teachers **Goal:** To connect CLIL core features and personalized learning.	
Topics	**Activities**
CLIL core features	Display the core features. Discuss what you think they mean and why they are considered core in CLIL (Connect with previous session). View slideshare document (Norman, 2013).
Personalized learning	View and discuss table (Bray & McClaskey, 2017) clarifying the difference between personalized and individualized learning which was a point of confusion in the surveys for both teachers.
Singularity, Openness and Autonomy	How do these features relate to CLIL core features? Make your own connections. Discuss this section of the literature review with trainees.

Scaffolding	Brainstorm techniques from in-house training and compare ideas with (Alibali, 2006).
Personalizing: class list	To close this session, the teachers will work with the class list, PET mock scores and the material from today's session to plan strategies to promote personalized learning in 8th grade Biology. Teachers will be guided through ideas such as: • Letting students set goals for Biology for the term. • Students to self-assess via reflection exercises on their goals. • Schedule time with teacher to discuss progress. • Plan formative assessment activities throughout the term. • Group work based on student choice. Students to set goals for their groups. • Encourage students to connect learning with future goals. • Use ICT – implement consistent use of the school's virtual classroom (Moodle platform) and Google Drive.

Table 6: Session two: Connecting CLIL with Personalized Learning

3.5.3. Teacher Training Session Three

The previous two sessions introduced teachers to the fundamentals of CLIL and personalized learning. Teachers are now ready to be guided through a planning a CLIL unit. The students are currently working on "Cycles of Matter". The teachers will be guided through a unit structure seen in table 7 below.

Duration: 100 minutes (double period)	
Objectives: Describe how water cycles through the biosphere.	

Learning outcomes	Assessment:
Know:	*Can the learners...*
the names of the key processes involved in the water cycle	identify and name the key processes involved in the water cycle?
Be able to:	
label a diagram the water cycle	recognize the processes that make up the water cycle in a diagram?
differentiate between evaporation and transpiration	explain the difference between evaporation and transpiration?
choose correct vocabulary for a description of the water cycle	complete a short summary of the water cycle?
Be aware:	
that this is a cycle, there is no definitive starting or ending point	use language of describing a cycle?
of your group and personal goals	Self-regulate in order to accomplish their goals?

The 4Cs
Content: The water cycle
Communication

Language *of*	Language *for*	Language *through*
Essential vocabulary: condensation, root uptake, evaporation, runoff, transpiration, and precipitation. Grammar: present simple and present simple passive tense to describe processes related to the water cycle.	Define and use terms Use the language for describing processes in the oral and written medium. Complete a simple summary.	Use dictionaries (paper or electronic) to make a glossary. Label diagrams Present orally in small pre-assigned groups your summary using ICT tools.

Expressions to mark stages in a process: as, during, then, until, at this stage, after and eventually.		

Cognition

Define biological and physical/chemical processes

Identify key processes in the water cycle

Label a diagram with the key processes in the water cycle

Classify processes in the water cycle into biological and physical/chemical

Analyze a description of the water cycle and identify expressions to mark stages in a process and the use of present simple and passive verbs.

Investigate the effects of man on the water cycle.

Culture

How is the water cycle affected by man? Students to choose pollution, deforestation and global warming.

Resources

Images, smart board, Biology text book

Scaffolding / Personalization techniques

Activation of prior knowledge: images and questioning. Project an image of the structure of a water molecule. Elicit H2O and water molecule (studied at the beginning of the unit). Ask: What happens to a water molecule when heated? Elicit: evaporates. Ask: What happens to the water molecule then? Is it destroyed? Elicit: it changes state but it is never destroyed. Ask: What do we call the process by which water is moves? Elicit: water cycle.

Language models: Keep a section of the smart board with examples of the present simple (Water continuously **moves** between..., Water may **be transported** by the wind...) and examples of expressions (some precipitation flows along the surface **until** it enters the river...).

Students to refer to their **personal goals** before **choosing** their groups. They choose the aspect of man's effect on the water cycle they want to work on and have the **freedom to use their local knowledge** to complete the exercise.

Table 7: Session three: planning a lesson.

3.5.4. Class Session: Implementation of CLIL Lesson

The lesson will be delivered by the Biology teacher. Prior to this implementation session, the teacher will work with the list prepared in session two to meet with students. Following the school's planning, each new term is opened with a generative topic in the exploratory phase which takes place during the first week. We propose that during the phase the teacher introduces some strategies for personalizing the class. Students will copy, as they do every term, the goals for the term. They will then be instructed to think about their performance in the previous term and think about what they will need this term to improve their performance. These goals that they have set will be kept in a separate section of their notebooks with space left for personal reflection. Students will be given a slip of paper with their last PET scores and overall ranking as be asked to set a language learning goal for the term. They will then be asked to make a personal choice as to which groups they will sit with during the classes most of which are arranged in groups.

The class session prepared in session three will be taught in the second week on the term. At the end of this session students will answer a brief questionnaire as to their impressions of the class.

4. DISCUSSION

The training sessions and classes proposed are an introduction to CLIL and personalized learning. The school already has the foundation in place for the successful implementation of CLIL with Biology and Mathematics taught in English by competent teachers. Through in-house teacher training, the teachers frequently share lesson plans and strategies which lends very easily to collaborative work. The focus of the sessions therefore was not to teach everything CLIL but to show the teachers what they already do and how they can take a step further by integrating content and language. Having stated this, it still is necessary to explore the core features of CLIL and CLIL teacher competences which set this approach aside from other content based ones.

The language teacher is indispensable for these sessions as she can provide language support in the training sessions and her English classes. The primary aim of this intervention proposal is to show how student language learning can be improved by

CLIL implementation. The language teacher knows the students' strengths and weaknesses and the PET scores and the subsequent grouping of students cannot be done without her input. Additionally, in order to personalize the learning process, it is useful for the content teacher to have another perspective of the student.

The focus on authentic performances as described in section 3.2., links with the CLIL core features of authenticity and active learning where students constantly connect what they are learning in the classroom and by doing this, take a lead role in their learning process. Authentic performances are also applicable to culture, one of the driving principles of CLIL. Students as much as possible connect their lives to what they are learning and with experiences in the vehicular language.

Throughout the training, background information is an important starting point for the introduction of CLIL. The teachers have prior knowledge of many of the concepts and so discussion activities using videos and charts are employed. The CLIL unit is designed for the teacher to work through the water cycle in a week using not only the strategies discussed in the sessions.

In general, the aim of the proposal is to use CLIL to bring more language awareness in the class by use of personalized learning and scaffolding. However, this is only a stepping stone into changing how language is approached and we hope that the plan can be applied to other subject areas as well.

5. CONCLUSIONS

The implementation of CLIL with a view to encouraging personalized learning is a result of the need identified in San Bonifacio de Las Lanzas School for more attention to language. One way of doing this was to focus on the content classes which were taught in English. General observation shows that students have more motivation for their content classes than in general English class. We therefore designed a proposal to focus on Biology class with the aim of scaffolding language in the classroom and thus raising motivation for the language. As a secondary aim, we see that personalizing learning can make students take control of their learning and hence improve their overall performance in language. To draw out this plan it was necessary to examine the driving principles of CLIL by describing the 4Cs conceptual framework (Coyle, 2006). The core features of CLIL (Mehisto et al., 2008) and the CLIL teacher

competences (Marsh et al., 2011) are essential to the proposal as these some of the factors that set CLIL aside from other content-based approaches. Personalized learning was explored from many sources. Insights from Järvelä brought us the seven critical dimensions in which personalized learning can be an effective tool for the classroom. Garcia Hoz (1988) linking the CLIL core features to three elements of personalized learning clarified the natural connection between personalized learning and CLIL.

After observing the class, talking to teachers and planning the intervention, we have concluded that moving forward with an integration of content and language will benefit both English and Biology classes. By personalizing the class the students will take responsibility for their progress which can lead to increased motivation and in the end better academic performance. Referring to the primary aim of implementing CLIL we have found that:

1. The school already has many positive aspects in place which would ease the implementation of CLIL. There is a strong focus on authentic performances which promotes active learning and consistently links student learning with the world around them. Frequent in-house teacher training have helped teachers with autonomous learning as they have focused on with work of Vygotsky and others. The concept of the ZPD features highly in lesson plans.

2. The students already function at a level of English that allows the teaching of content in English. It is clear that from the class observation that they have good use of CALP and will benefit from language scaffolding to improve their BICS.

3. The dual focus of content and language in Biology will raise expectations for the consistent use of English. Students will be discouraged from reverting to Spanish as various scaffolding techniques will be used to help them with the language.

4. Collaboration from the language teachers in lesson planning with Biology can help support the Biology teacher with language scaffolding.

5. The synthesis projects are a good opportunity for Biology and English to work together on joint projects. Justification for this can be seen in the presentation observed where project exhibitions were already of a high standard but would have been of a higher standard if students had preparation specifically on presenting in English. This would have bettered their pronunciation of academic words as well as their willingness to use BICS. A joint project would have the added benefit of reducing the academic burden in the students as they would have to present on synthesis project for two subjects.

6. It would be possible for Biology to follow a Hard CLIL approach to learning but what would also be easily implemented would be a form of Soft CLIL in English class where students are preparing for their PET exam. In preparation for reading for example, the teacher could use the content of the reading passages to carry out CLIL type lessons which will show a students that this approach is used in other subjects as well which would make Hard CLIL classes easier to adapt to.

Regarding the secondary aim of personalizing learning, we determine that:

1. It is important for teachers to collaborate to be able to fully understand student needs for personalization of learning.
2. Students need to reflect on not only their overall learning but also their language learning. If this plan were implemented, language would become a focus in their Biology class, which from the surveys it was clear that students enjoyed. Having personal language goals would put the use of language to the forefront.
3. Should students work in groups of their choice after reflecting on their English scores and setting goals, they will become more aware of their learning process.
4. Personalized learning to assist with motivation for language learning should be a school approach so students are expected to constantly set goals, drive their own learning and so become autonomous learners.

CLIL as an approach to language learning can be implemented with minimal training at this school. We believe that though initially the teacher stated that language training was not necessary, when trained in integrating language the more dynamic classes with students using the language will motivate the change.

6. LIMITATIONS AND FURTHER RESEARCH

CLIL is widely practised in Europe and there is an abundance of research and training materials available. However, as outlined in section 2.4, CLIL in Colombia is limited. There is a strong focus on bilingualism but few schools use the CLIL approach and so there is little published as to how it works and its effectiveness in a Colombian school. Furthermore, opportunities to visit a school in Colombia and observe CLIL in practice are limited.

There are many positive aspects to this intervention proposal. It shows teachers at this school that with minimal training they will be able to implement CLIL to some degree. Should this proposal be applied, at first personal reflection on the part of the teacher will be a first step in realizing what it means to be a bilingual teacher. It is essential that any teacher embarking on CLIL know the importance of being a model for the language.

The time period allotted for the classroom visit only allowed the observation of the synthesis project which provided valuable information on the students but it would have been more complete if it were a regular class where content was being presented so the teacher's methods could have been observed. This would have helped in making the proposal more tailored to the teacher's needs. In addition to limited observation in Biology class, only Biology for one grade was looked into. More data could have been collected on other grades to give a more complete picture of the school. Moreover, there is also Mathematics in English at the school which would have further improved this endeavor. Personalization would also require more than just one teacher's view of a student so more observations with another subject would be valuable.

The training sessions outlined here though would give the teachers a good starting point for CLIL, could be planned in more detail and carried out over a longer period of time. Should the school decide that CLIL is the way forward to improving language learning, this would require a more extensive training plan in all cycles. A general introduction plan along with cycle specific sessions would be necessary.
Limitations with regard to personalized learning began with the research available. It is a much researched topic which provided an abundance of material to provide a theoretical background on the topic. We found that looking for strategies that could be applied in the classroom was not as easy. Most research talked about the benefits of personalization and those that did show strategies that could be implemented were rather general.

Students would undoubtedly gain from personalization in Biology class but for this to be effective it needs to be done on a wider scale. Students who are not used to being accountable for their learning and progress would at first find it difficult to adhere to their plans. As with many teenagers, the temptation to use the time which they are given to work autonomously, to socialize can be overwhelming. Students would

therefore need considerable time and guidance to adapt. Having personalization in more classes would also help them to adjust.

In conclusion, though this proposal was not carried out, we see that despite the limitations mentioned here, this plan would provide a step in the right direction for the implementation of CLIL and personalized learning at this institution.

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ANNEXES

ANNEX I. Consent Letter – San Bonifacio de las Lanzas School

Ibagué, 31 de mayo de 2017

Señores
UNIVERSIDAD INTERNACIONAL DE LA RIOJA
España

Por medio de la presente dejo constancia que la estudiante MA en educación bilingüe, LANA RAMNATH identificada con cédula de extranjería 347816, Cuenta con autorización de la Corporación Colegio San Bonifacio de las Lanzas, para que realice una encuesta, entrevistas, observación de clases y planes de unidad a docentes bilingües del grado octavo, en el mes de junio del presente año; con el fin, de tomar datos para el desarrollo de una investigación acerca de la integración de principios de CLIL.

Además, el colegio autoriza al docente para utilizar el nombre de nuestra institución con fines académicos.

Atentamente,

MAURICIO CABRERA SAAVEDRA
Rector

ANNEX II. Classroom Observation Form (Page 1)

Observation Form

Subject: _____   **Grade:** _____   **Date:** _____

Unit: _____   **Length of class:** _____

Brief summary of the class plan:

_____

_____

_____

_____

Layout of the classroom:

_____

_____

Student use of English:

with the teacher:

_____

_____

with each other:

_____

_____

1

Classroom Observation Form (Page 2)

When using English:

CALP:

_____

_____

BICS:

_____

_____

Student interaction:

_____

_____

Teacher use of English:

_____

_____

Teacher correction of student English:

_____

_____

Language awareness in teacher:

_____

_____

2

ANNEX III. Biology Teacher Survey

Biology Teacher Survey

Name: XXXX	Teaching Experience:	Teaching Experience in English:
First Language:	Other languages:	English Level:
Subjects taught in English:	Average number of students per class:	

1. What methodology do you use when teaching content in English?

_____

_____

2. What are the benefits of this methodology?

_____

_____

3. Are there any aspects that can be improved?

_____

_____

4. What forms of communication do you use with your students in the classroom?

_____

_____

5. What are the advantages and disadvantages of teaching content in English?

_____

_____

6. Do you think that you need training in teaching content in English?

_____

_____

7. Are you familiar with CLIL (Content and Language Integrated Learning)?_____

1

Biology Teacher Survey (Page 2)

    8. Would you like to know more about CLIL?

_____

_____

    9. Are any of these aspects present in your classes:

a. Content	☐	c. Cognition	☐
b. Communication	☐	d. Culture	☐

10. If they are, which one is the focus for you?   _____

11. Do your students use basic interpersonal communication skills (BICS) in the classroom?

_____

_____

    12. How do you help them to develop cognitive academic language proficiency (CALP)?

_____

_____

    13. How do you promote critical thinking in the classroom?

_____

_____

    14. Do you include elements of culture in your lesson plans?

_____

_____

    15. Do you include language objectives in your lesson planning?

_____

_____

16. Do you think it is necessary for students to speak English at all times in your class?

_____

_____

    17. Are all written assignments in English? _____

2

Biology Teacher Survey (Page 3)

18. How do you support language in the classroom?

_____

_____

19. When students do not understand content in English, how do you support them?

_____

_____

20. Are you familiar with the term personalized learning? What do you think it means?

_____

_____

21. Do you consider your students to be autonomous learners? Explain.

_____

_____

22. Do you motivate your students to learn English? If so, how?

_____

_____

23. From your point of view, what are your students' attitudes towards Biology in English?

_____

_____

24. Do you think studying Biology in English is beneficial to students?

_____

_____

25. Would you like to make any other comments about your experience of teaching content in English?

_____

_____

3

ANNEX IV. English Teacher Survey

English Teacher Survey

Name:	Teaching Experience:	Teaching Experience in English:
First Language:	Other languages:	English Level:
Subjects taught in English:	Average number of students per class:	

1. What methodology do you use when teaching English?

   _____

   _____

2. What are the benefits of this methodology?

   _____

   _____

3. What topics are covered in your English classes?

   _____

   _____

4. What forms of communication do you use with your students in the classroom?

   _____

   _____

5. What are the advantages and disadvantages of teaching English as a foreign language?

   _____

   _____

6. Have you ever taught a content subject (e.g. Mathematics or Biology) in English? Specify.

   _____

   _____

7. Are you familiar with CLIL (Content and Language Integrated Learning)? _____

English Teacher Survey (Page 2)

8. Would you like to know more about CLIL?

_____

_____

9. Are any of these aspects present in your classes:

a. Content ☐   c. Cognition ☐
b. Communication ☐   d. Culture ☐

10. If they are, which one is the focus for you?   _____

11. Do your students use basic interpersonal communication skills (BICS) in the classroom?

_____

_____

12. How do you promote critical thinking in the classroom?

_____

_____

13. Do you include elements of culture in your lesson plans?

_____

_____

14. Do you include content objectives in your lesson planning?

_____

_____

15. Do you think it is necessary for students to speak English at all times in your class?

_____

_____

16. Are all written assignments in English? _____

17. How do you support language in the classroom?

_____

_____

2

English Teacher Survey (Page 3)

18. When students do not understand something in English, how do you support them?

_____

_____

19. Are you familiar with the term personalized learning? What do you think it means?

_____

_____

20. Do you consider your students to be autonomous learners? Explain.

_____

_____

21. Do you motivate your students to learn English? If so, how?

_____

_____

22. From your point of view, what are your students' attitudes towards English?

_____

_____

23. Do you think studying English as a subject is beneficial to students?

_____

_____

24. Would you like to include any content in your English class (e.g. Mathematics or Biology?)

_____

_____

25. Would you be willing to work alongside a content teacher in order to support English? Explain.

_____

_____

_____

_____

3

ANNEX V: Student Survey

Student Survey

1. How long have you been studying English at school?
    _____

2. Do you enjoy studying English? Why/ why not?

    _____

    _____

3. What are the advantages and disadvantages of studying subjects in English?

    _____

    _____

4. Do you speak English at all times in Mathematics, Biology and English classes? Why/why not?

    _____

    _____

5. Do you think it is necessary for you to speak English at all times in Mathematics, Biology or English classes?

    _____

    _____

6. How do your Mathematics and Biology classes in English differ from English Language class?

    _____

    _____

    _____

7. Which do you prefer Biology and Mathematics classes or English Language classes? Why?

    _____

    _____

8. Do you think that you would understand Mathematics and Biology more if they were in Spanish?

    _____

    _____

1

Student Survey (Page 2)

9. What do you do when you do not understand something that is in English in Mathematics or Biology? What does your teacher do?

_____

_____

10. Do you think you would benefit from language support in your Mathematics or Biology classes?

_____

_____

11. Do you think you are an autonomous learner? Why/why not?

_____

_____

12. Would you like to be able to work more autonomously? What do you think you would need from your teachers? Friends? Family?

_____

_____

_____

13. How do you think your English Language teacher can help you with the language skills you need for Mathematics or Biology?

_____

_____

14. How can ICT tools help you to become more autonomous?

_____

_____

15. Do you think you are motivated to learn English? Why/why not?

_____

_____

16. Would you like to have more subjects in English? If so, which ones?

_____

_____

2

ANNEX VI: CLIL or ELT Materials?

FOLLOW-UP ACTIVITY *(See page 116 for answers)*

Look at these materials (1–4) from coursebooks. Which are from ELT books and which are from CLIL books? How do you know? Think of the 4 Cs as well as BICS and CALP.

1

Plant or animal?

■ LOOK AND DO

1. Classify the food. Use stickers.

sticker   sticker   sticker   sticker

sticker   sticker   sticker   sticker

sticker   sticker   sticker   sticker

2. Draw a healthy sandwich.

+   +   +

stickers

Plants and animals

| plant | plant | plant | plant | plant | plant |
| plant | animal | animal | animal | animal | animal |

(from *Essential Science 1*, Santillana Richmond 2006)

8

2

5 *A B C, food for me!*

8 Listen and write the numbers.

○   ○   ○   ○   ○

○   ①   ○   ○

9 What letters are missing? Say, listen and check.

_HI_S   _ANA_AS
APP_ _S   CH_C_EN
SAN_ _ICHES   E_GS
C_EE_E   C_KES
_ _ANGE _ _ICE

(from *Join Us for English* by G. Gerngross and H. Puchta, Cambridge University Press 2006)

3

Source 3
World wood usage

40% Construction
50% Fuel
10% Paper

Activity 1

Look at Source 3. Draw bar graphs or a divided bar graph to show world wood usage.

(from *Challenge*, ed. V. Bunce, Longman 1999)

4

3 **Read this paragraph about the economy of Sweden, and put all the verbs in the passive.**

In the south of Sweden farmers grow cereals, potatoes and sugar beet, and rear cattle and pigs. The Swedes exploit the northern forests for their timber. They can export timber products indefinitely because they have managed the forests well and not destroyed them with uncontrolled cutting. They mine iron inside the Arctic Circle. They established the first mines in the 1890s, and the high salaries attracted workers to move to this inhospitable region. But they have recently had to close many mines because of a fall in demand. Competition from developing countries has damaged the once prosperous steel and shipbuilding industries, but industrialists manufacture a variety of profitable goods, including aircraft, cars, domestic equipment and textiles.

(text from *First Certificate Avenues* by D. Foll and A. Kelly, Cambridge University Press 1998)

Bentley, 2010, p. 8-9

ANNEX VII: CLIL Teacher Competences Worksheet

CLIL teacher competences checklist. Reflect on the following essentials for CLIL teachers and make notes on your needs.	
Personal Reflection Are you confident about using English in the classroom? How do you feel about having to teach in English? Do you set an example for your students?	
CLIL Fundamentals Are the six core features of CLIL present in your classroom? If not, which will be the easiest to implement? Which will be the most difficult?	
Content and Language Awareness Do you: − examine content to be taught for difficulty? − think about various cultural aspects of your lesson? − identify the language necessary to carry out a lesson?	
Methodology and Assessment Do you: − help learners work autonomously? − encourage collaborative work? − urge students to better their English? − use various assessment strategies?	
Research and evaluation How do you keep up to date with new research and methodologies? Do you frequently evaluate yourself and your students?	

CLIL Teacher Competences Worksheet (Page 2)

Learning resources and environments Do you: − consistently focus on content, language and learning skills? − use various cognitively challenging materials? − use different learning environments?	
Classroom management How often do you change the layout and dynamics of the classroom? Do you personalize activities based on learner needs? How do you ensure all learners participate actively?	
CLIL management Do you work collaboratively with other teachers? Staff? Do you think it would be easy or difficult to promote CLIL within the school environment and with families?	