

Implementing CLIL in a Primary School in Spain: The Effects of CLIL on L2 English Learners' Oral Production Skills

Research Paper

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To Mia

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Abstract

This study presents the results of implementing a CLIL programme in a Catalan primary school three years after the onset of the implementation. The main objective of this investigation was to determine the effects of CLIL on students' L2 English oral performance in terms of *Complexity*, *Accuracy* and *Fluency* (CAF) by means of analytic measures. The results obtained from the analysis suggest that CLIL learners outperform non-CLIL learners of the same ages not only in fluency, which has been seen as one of the main contributions CLIL can offer to second language learners, but also in syntactic complexity. However, despite the encouraging results obtained, the study concludes that further research which keeps amount of input constant between CLIL and non-CLIL groups and which transcends some of the methodological limitations observed in the study is needed in order to confirm the results.

1. INTRODUCTION

The acronym CLIL (*Content and Language Integrated Learning*) started to become popular in the 1990s to refer to “all types of provision in which a second language is used to teach certain subjects in the curriculum other than language lessons themselves” (Eurydice European Unit 2006: 8). Since then, many European schools have implemented CLIL not only as an innovative approach to the teaching of foreign languages but as a way to achieve the aims stated by the European Commission regarding multilingualism in Europe. In its White Paper on Education and Training *Teaching and Learning -Towards the Learning Society* (1995), for instance, the European Commission puts forth the incorporation of CLIL programmes in secondary school in order to achieve plurilingualism among EU citizens:

It could even be argued that secondary school pupils should study certain subjects in the first foreign language learned, as it is the case in the European Schools. Upon completing initial training everyone should be proficient in two Community foreign languages. (1995: 67)

The origin of CLIL, then, could be seen as a response to the European recommendations on plurilingualism, but also as a need to embrace the findings within SLA research which had been long pointing to the conditions that made foreign language learners acquire and develop language skills to engage in “genuine communication” (Eurydice European Report 2006: 8), as well as to provide a feasible solution to the apparent failure of foreign language learning in Europe (Lasagabaster and Sierra 2010). In that sense, and as Muñoz (2007: 17) puts forward, CLIL may be viewed “as an alternative that could overcome the deficiencies in previous language models”. The reason why CLIL can be such a powerful approach to the learning of foreign languages lies in its integration of both language and content with no preference of one over the other (Coyle 2006, 2007). That is to say, in CLIL settings the learning of the foreign language goes hand in hand with the learning of content which turns CLIL lessons into contexts where both meaning (i.e. content) and linguistic form (language) are dealt with and, consequently, avoids an excessive focus on either language or content in isolation.

In spite of the all the potential CLIL seems to offer to SLA, a great deal needs to be done to reinforce the position of CLIL as a successful language programme within

foreign language teaching. To start with, the theoretical foundations of CLIL must be clearly set up (Dalton-Puffer 2007). In addition, other researchers (Lasagabaster & Sierra 2010, Navés & Victori 2010) have also pointed out and emphasised the need to have empirical studies that backup statements so often made about the benefits of CLIL, as well as to generalise the implementation of CLIL as a successful teaching model in order to consolidate CLIL programmes.

As a consequence, many researchers within the fields of SLA, Applied Linguistics and Bilingual Education have started to carry out research projects to investigate the effects of CLIL on foreign language learning in order to empirically test the efficiency of CLIL and redress the imbalance between the number of CLIL programmes that are being implemented all around Europe and the limited amount of research being done. This study, for instance, aims to contribute to the field by providing an empirical study which examines the effects of CLIL on L2 English learners' oral production skills and determines which aspects of L2 oral performance seem to be positively affected by CLIL exposure.

1.1 CLIL and Second Language Acquisition

The interest in studying CLIL from the perspective of SLA responds to the need to determine to what extent CLIL settings, as opposed to previous foreign language learning contexts lead to successful foreign language learning. Content-based language learning contexts such as CLIL have been usually seen as optimal instructional contexts for language acquisition to take place due to their orientation to meaning instead of form. However, as Swain (1988: 1) pointed out “not all content teaching is necessarily good language teaching”. Her observations of content-based language lessons suggest that one of the reasons why such instructional contexts do not necessarily enhance language learning is because the type of language produced by teachers, to which she referred as *functionally restricted language*, is not appropriate. According to Swain (ibid), the language some learners in content-based language learning settings are exposed to does not cover the wide variety of linguistic functions language can unfold, which, according to her, may explain the lack of linguistic gains some learners in content-based language settings show.

Despite the limitations of content-based language programmes as regards foreign language learning, researchers like Met (1999) and Muñoz (2007) highlight some of the beneficial conditions CLIL may offer to second language learning provided that CLIL contexts overcome the challenges presented by Swain (1988). As Muñoz (2007: 23) indicates, the fact that “in CLIL the teaching-learning of content is integrated with the teaching-learning of language” turns CLIL settings into optimal contexts for second language acquisition as they include or have the potential to incorporate most of the essential components for second language acquisition to take place, which are input, focus on meaning, focus on form and output.

As for the role of input in CLIL settings, it is important to point out that CLIL lessons provide learners with great amounts of comprehensible input, and according to Krashen’s Input Hypothesis (1985) and other linguists (Gass 1997, Van Patten 2003), comprehensible input is crucial for second language acquisition to take place. However, as Muñoz (2007) points out, the input learners are exposed to has to fulfil a communicative purpose, too, which is one of the main strengths of CLIL settings as language is no longer seen as the object of study but as the vehicle through which meaning is transmitted. In other words, the primary function of language in CLIL programmes is to communicate meaning. As Met (1999: 48) states, “content serves as a powerful mechanism for promoting communication in the new language” and it is precisely in contexts where the focus is on meaning and communication that, as many researchers suggest (Genesse 1994, Met 1999), deeper learning of the language and content may take place.

Another of the elements which is seen as essential for language acquisition to take place and to develop all language skills is attention to *form* as opposed to attention to *forms*. Focus on *form* “refers to how focal attentional resources are allocated” (Long & Robinson 1998). That is to say, attention to form may just mean drawing students’ attention to a particular linguistic feature as it arises in an oral exchange or focusing on the form of certain linguistic structures which are needed to perform a communicative task. Focus on *forms*, on the other hand, does not attempt to achieve a communicative purpose during a communicative situation but to provide learners with input and practice to work on isolated aspects of the language. Despite the interest focus on *form*

has awoken among many applied linguists as a successful way to enhance foreign language learning, researchers like Sheen (2003) warn that there is little recent research which backs up the efficiency of focus on *form* over focus on *forms*. According to Muñoz (2007: 23), however,

Although the integration of a focus on form is not a defining characteristic of CLIL teaching, it is viewed as a highly desirable characteristic of all communicative lessons, including CLIL.

The reason why Muñoz suggests incorporating some focus on *form* into CLIL is because many pieces of research prove that students who have been in immersion programmes in Canada for long periods of time show problems in producing accurate language (Genesse 1994, Lyster 1998). One of the possible explanations may be due to the lack of focus on *form* within immersion programmes. As a consequence, many researchers in the field of SLA (Lyster 2007, Muñoz 2007, Pérez-Vidal 2007) defend the use of an approach which integrates both focus on *form* and meaning with the aim of promoting a better learning of the target language in the CLIL classroom. Research conducted by Grim (2008), for instance, shows positive effects of planned focus on *form* on the learning of grammar, vocabulary and culture in L2 content-based classrooms. As Doughty and Williams (1998:2) suggest, an approach based on *form* may be needed to move from a “communicatively effective language toward targetlike second language ability”. As a result, the interest in the focus on *form* introduced by Long (1991) and the Noticing Hypothesis presented by Schmidt in 1990 which posits that learning requires awareness, have regained importance in as much as both researchers defend that certain levels of attention to *form* may be necessary to develop grammatical competence.

In addition to the importance of input, meaning and form, output is also viewed as a crucial element for second language acquisition. According to Swain’s Output Hypothesis (1993), being exposed to input alone is not enough to learn a language. Swain (1998) suggests that linguistic production may fulfill three functions: noticing the gap in the students’ interlanguage, hypothesising about the linguistic system and, finally, promoting metalinguistic talk, which seem to be essential operations within the process of language acquisition to develop productive skills and accuracy. As Swain states (1993: 159), producing output not only affects fluency in the sense that it “permits

the development of automaticity” of students’ linguistic resources but also accuracy as “producing language may force the learner to move from a semantic processing to a syntactic processing”. Moreover, one of the lessons to be learnt from immersion programmes implemented in Canada is that learners “seldom achieve the same high levels of competence in speaking and writing as they achieve in comprehension” due to the “lack of opportunities to engage in extended discourse” (Genesse, 1994). Likewise, Cummins (2000) refers to the poor development of productive skills in immersion programmes as a consequence of the “paucity of classroom opportunities”. Hence, taking into account that meaning and communication are the driving forces in CLIL settings, the enhancement of productive skills in such settings becomes crucial.

Having seen the great potential CLIL can offer to foreign language learning, this study aims at shedding some light on the effects of CLIL on students’ L2 English oral production skills as measured by complexity, accuracy and fluency measures. The relevance of the study presented here lies in the investigation of one of the most unknown aspects of language learning in CLIL settings: oral production skills.

1.2 CLIL in Europe

Research on the impact of CLIL on students’ linguistic competence has proliferated in the last five years all around Europe. Admiraal et al’s (2006) research project conducted in The Netherlands on the effects of CLIL (or Bilingual Education) on the attainment levels of English as a second language in secondary education, for instance, showed that students in bilingual education performed statistically better in the reading comprehension test and the oral proficiency test than students in regular education, whereas no significant results were found in receptive word knowledge between the two groups of students.

Mewald’s case study (2007) conducted in Austrian secondary schools also reports positive effects of CLIL instruction on students’ oral performance in the foreign language. In particular, the results indicate that CLIL learners outperformed non-CLIL

students in fluency aspects, such as sentence length and the ability to produce continuous speech, in accuracy and lexical diversity.

Research conducted by Hüttner and Rieder-Bünemann (2007) on the oral narrative development of students following CLIL and standard courses in year 7 showed that CLIL learners obtained higher scores in some of the micro-level features analysed, such as correct use of verb forms and anchor tense consistency, as well as in some macro-level characteristics, which include reference to all plot elements or description of conceptually complex elements.

Likewise, Várkuti's study (2010) on the influence of CLIL on students' communicative and academic language skills in Hungarian secondary schools found that CLIL students performed significantly better in both types of language skills. Moreover, Várkuti's study (2010: 75) reports that CLIL learners "possess a larger active and passive lexicon", which confirms previous research findings on the positive influence of CLIL on vocabulary (Dalton-Puffer 2009).

1.3 CLIL in Spain

The number of CLIL programmes, also known as AICLE (*Aprendizaje Integrado de Contenidos y Lengua Extranjera*), that have been implemented all over Spain to improve the linguistic competence of students in English has been on the increase for the last few years (Muñoz & Navés 2007, Lasagabaster & Ruiz de Zarobe 2010). As Coyle (2010: viii) puts it,

Spain is rapidly becoming one of the European leaders in CLIL practice and research. The richness of its cultural and linguistic diversity has led to a wide variety of CLIL policies and practices which provide us with many examples of CLIL in different stages of development that are applicable to contexts both within and beyond Spain.

Most research undertaken within the Spanish context aims at examining the impact of CLIL programmes on students' language proficiency. Among the most relevant research conducted in Spain it is worth mentioning the studies carried out in the Basque Country, Galicia and Andalusia as the results obtained indicate a positive effect of CLIL on students' linguistic competence.

As regards the implementation and results of CLIL programmes in the Basque Country, Lasagabaster's study (2008), which compared the linguistic competence of secondary students in CLIL programmes and students in traditional EFL courses, found statistically significant differences in all language skills (including speaking, writing, grammar, listening and overall English competence) in favour of CLIL students in secondary education. Likewise, Ruiz de Zarobe's research (2007) on the oral proficiency of secondary learners showed that CLIL learners outperformed non-CLIL learners in most of the measures used to analyse oral skills. In addition, Jiménez et al's (2006) results on the effects of CLIL instruction in two contexts (the Basque Country and La Rioja) report that learners in secondary education within the CLIL group performed better than the non-CLIL group in a cloze test and reading comprehension task as well as in the productive tasks (writing). Finally, Ruiz de Zarobe's study (2008) showed significant differences in all of the measures used to analyse students' speech production skills in favour of CLIL learners in secondary education.

As for the impact of CLIL programmes in Galicia and Andalusia on the linguistic competence of secondary students (which is not as extensive as in the Basque Country), San Isidro (2010) reports significant differences in all four linguistic skills in favour of CLIL students in Galicia. Similarly, research conducted by Lorenzo et al (2010) in Andalusia indicates that CLIL has a positive effect on students' linguistic competence as the results showed that CLIL learners performed better than their peers in the non-CLIL groups in reading, listening, writing and speaking skills after one and a half years of CLIL exposure.

Despite the positive effects of CLIL, Fernández (2010) warns that the interpretation of the results obtained from research within the Spanish context has to take into account the fact that the improvement of the linguistic competence of CLIL learners over EFL learners may be due to the fact that the amount of English exposure learners receive is greater for CLIL groups than EFL groups, as CLIL lessons often imply extra exposure.

1.4 CLIL in Catalonia

Before presenting the research conducted in Catalonia, it is worth mentioning that after the democratisation of the political system in Spain in 1978, Catalan, one of the official languages in Catalonia along with Spanish, regained its social status. Ever since then, linguistic policies such as the implementation of immersion programmes in which Catalan is the vehicle of instruction in content subjects have been implemented throughout the whole educative system in Catalonia. Several studies on the effects of such immersion programmes conclude that by the time Catalan students finish compulsory secondary education, they are fully bilingual in Catalan and Spanish (Navés & Victori 2010).

However, despite the success of immersion programmes in Catalonia, “CLIL has not been systematically adopted in Catalonia” (ibid: 30). According to Navés and Victori (ibid), aspects such as stakeholders’ support and the continuity of CLIL programmes are some of the features that CLIL programmes in Catalonia lack. As Vallbona points out (2009: 25), “CLIL is still a voluntary, teacher-led approach in most schools”.

Regarding the type of research that has been conducted in Catalonia on CLIL, it is worth pointing out that not many studies have sought to investigate the linguistic gains of such an approach to foreign language teaching/learning in primary and secondary education (Navés & Victori 2010). Among some exceptions, we find studies that aimed at examining the effects of CLIL on overall language proficiency in primary education. Vallbona (2009), for instance, compared overall language proficiency (listening, reading and writing) of 5th and 6th graders in primary education after having been exposed to 35 hours of CLIL (in addition to three hours of EFL lessons a week) with students of the same grades that had only been in regular EFL lessons. The results of her study showed that CLIL learners in grade 5 outperformed their peers in the non-CLIL group in fluency and lexical diversity whereas 6th graders showed statistically significant results in lexical diversity.

In a subsequent study conducted by Victori et al (2010) in which they compared the linguistic competence (listening, reading and writing) of CLIL and non-CLIL

students in grades 5 and 6 of primary education after 105 hours of CLIL, the results obtained showed greater statistically significant differences in favour of CLIL learners indicating the positive long-term effects of CLIL programmes. Significant differences were found in listening and writing among 5th graders and in listening and fluency among 6th graders.

Similarly, research conducted by Navés and Victori (2010) in which the linguistic competence of CLIL and non-CLIL students in primary and secondary education from different Catalan schools was compared, showed that CLIL learners performed better in most of the tests (listening test, cloze test, grammar test, dictation test and a writing composition) than non-CLIL learners. Moreover, their study concludes that learners in grades 7 and 9 who had received CLIL instruction were two years ahead in many of the aspects analysed of learners that had only been in EFL lessons.

Similar to the research reviewed so far, Miret's study (2009) reported positive effects on the linguistic competence of secondary students in CLIL programmes. Moreover, Miret compared the results obtained by CLIL learners with EFL learners that were between one and three years older and the results indicate that "attending CLIL lessons may enhance the process of language acquisition up to three grades both in receptive and productive skills" (2009: 38).

In addition, research on the impact of CLIL as opposed to other contexts like study abroad and traditional EFL lessons is also being conducted by the SALA-COLE project (Pérez-Vidal and Juan-Garau 2010). Some of their preliminary analyses (Juan-Garau 2010) contrasting the effects on fluency between learners attending EFL and CLIL lessons in secondary school show that there are significant differences in fluency, more specifically in rate of speech, between CLIL and non-CLIL learners.

As seen from the literature presented so far, the study of the effects of CLIL in primary school settings remains generally unexplored. Hence, the study presented here seeks to address the impact of CLIL on students' English oral production skills in such a school context, which because of the students' age and cognitive capacities has a great deal to offer to SLA.

2. THE STUDY: AIMS, RESEARCH QUESTIONS AND HYPOTHESES

As can be seen from the studies reviewed so far, the implementation of CLIL programmes in Catalonia along with their results is generating a great interest among researchers. However, owing to the fact that the implementation of CLIL is at an initial stage, more research is needed to investigate the long-term effects of CLIL so as to be able to carry out a comprehensive and objective evaluation of such programmes.

The study presented here, then, aims at investigating the effects of CLIL on students' L2 English oral performance after three years of CLIL exposure (105 hours in total). The study responds to the need to have more empirical studies which examine gains in language proficiency, oral production in particular, as much of the research on CLIL conducted within the Catalan context has focused on oral interactional patterns whilst very few studies have analysed the linguistic gains of such language programmes (Navés & Victori 2010). Moreover, as can be seen from the review of studies presented, most of the research done so far is based on the implementation of CLIL in secondary education, while primary settings remain unexplored. In addition, one of the issues that has emerged from some of the research reviewed so far (Ruiz de Zarobe 2007 and 2008, Lasagabaster 2008 and San Isidro 2010, for instance) is the fact that learners enrol on CLIL programmes voluntarily, which means that CLIL learners in those settings may have an advantage over non-CLIL learners in terms of degree of motivation and language proficiency in English.

Hence, the present study seeks to contribute to the field by analysing the gains in oral performance of students in grades 5 and 6 of primary education who have compulsorily received one hour of CLIL exposure a week for three consecutive years (105 hours in total), starting in grades 3 and 4 respectively, in addition to the hours of EFL instruction. The study presented here, then, will provide a comparison of learners' oral production skills in English after having received 105 hours of CLIL exposure plus the mandatory EFL lessons with learners of the same ages that have been exposed to the same amount of EFL exposure but have not received CLIL instruction. The study aims at investigating the effects of CLIL on the three dimensions of L2 oral performance: Complexity, Accuracy and Fluency (See Special Issue on CAF published in *Applied Linguistics*, 30: 4, 2009).

Thus, the research questions of the study are:

1. Are there significant differences in syntactic complexity between CLIL and non-CLIL learners after 105 hours of CLIL exposure?
2. Are there significant differences in lexical complexity between CLIL and non-CLIL learners after 105 hours of CLIL exposure?
3. Are there significant differences in accuracy between CLIL and non-CLIL learners after 105 hours of CLIL exposure?
4. Are there significant differences in speed fluency (speech rate) between CLIL and non-CLIL learners after 105 hours of CLIL exposure?

In line with previous research findings, the main areas of improvement are predicted to be in fluency (Juan-Garau 2010, Vallbona 2009, Lasagabaster 2008, Dalton Puffer 2007, Mewald 2007) and in vocabulary (Dalton-Puffer 2009, Várkuti 2010, Jiménez et al 2007, Mewald 2007). Even though positive results are expected in favour of CLIL learners, there will probably be few or no significant results in favour of CLIL learners after 105 hours of CLIL exposure as previous research has pointed out (Navés & Victori 2010, Miret 2009, Vallbona 2009, Ruiz de Zarobe 2007). In addition, positive results are also expected in accuracy in favour of CLIL learners as research conducted by Mewald (2007) and Hüttner and Rieder-Bünemann (2007) indicate. As regards syntactic complexity, this study seeks to explore whether it is one of the aspects of L2 oral production that remains unaffected by CLIL instruction, as stated by Dalton-Puffer (2007) and Mewald (2007).

3. METHOD

The study presented here belongs to a larger research project (Victori, Vallbona & Bret 2010) on the effects of CLIL on the linguistic competence of students in grades 5 and 6 of primary education. The focus of this research paper, then, will be the presentation and discussion of the results obtained for the oral tasks by 5th and 6th graders.

The study was designed following the methodology of previous research conducted on CLIL in Spain in which learners that had only been in EFL settings were compared with learners that had received the same amount of EFL instruction plus an extra amount of CLIL exposure (Lasagabaster & Ruiz de Zarobe 2010, Jiménez Catalan & Ruíz de Zarobe 2009, Navés and Victori 2010, Miret 2009, Vallbona 2009). The fact that amount of English exposure was not kept constant between CLIL and non-CLIL groups presents one of the main flaws of this study, which will be dealt with in detail in the discussion section.

3.1 School Context

The study was carried out in a semi-private school located in a village within the province of Barcelona. The school offers schooling for three educational stages: infant school, primary education and compulsory secondary education. Concerning the demographic makeup of the school, it is worth pointing out that most of the students attending this school come from families with a mid-high socioeconomic status and a Catalan or Spanish background.

The school started to implement *Science* in the year 2006-07 in grades 3, 4, 5 and 6 of primary school. The school, along with the Parent's Association, decided to do so in order to increase the number of hours devoted to English and improve the students' level and knowledge of the language. Thus, students had one hour of *Science* a week in addition to the three hours of instrumental English they already had each week.

As regards the teachers involved in the implementation of CLIL in this school, it is worth mentioning that the teacher in charge of delivering the CLIL subject for the

first two years of implementation (2006-07 and 2007-08) was a primary school EFL teacher who had not received previous training on CLIL and whose language proficiency level corresponded to B1. The observation sessions carried out indicated that the tasks and strategies used by the teacher were not the appropriate ones to implement CLIL (see Victori & Vallbona 2008). In 2008-09 a new teacher was hired to implement CLIL. The new teacher was an English Philology graduate with previous teaching experience in EFL who had taken a Master's programme on CLIL.

Hence, since 2006 the school's interest in developing the students' abilities and skills in English has been constant and has resulted in the implementation of various initiatives and projects led by the headteacher of the school, parents and teachers (with the support and supervision of a specialist researcher in Applied Linguistics). Some of these initiatives were, firstly, setting up a Self-access room in the school for the learning of English where secondary school students could learn English autonomously and at their own pace using new technologies (DVD players, digital board, TVs and MP3), reference books, simplified readers and other materials aimed at working on the four skills. Secondly, stay-abroad programmes were organised with the aim of offering secondary learners the opportunity to live with British families during a week and attend EFL lessons with native teachers of English. Thirdly, the school decided to start offering CLIL courses in secondary school so that students that had received CLIL in primary school could continue taking CLIL subjects.

3.2 Subjects

The subjects that participated in this study were 32 Catalan/ Spanish bilingual primary students in grades 5 and 6 of primary education. Out of these 32 subjects, 16 made up the Non-CLIL group (control) and the other 16 the CLIL group (treatment). The 16 students in the control group had only received the mandatory curricular English hours a week, whereas the subjects in the treatment group had had CLIL lessons for three consecutive years (105 hours in total) besides the hours of regular EFL lessons a week. Both treatment and control groups were subdivided into fifth graders (8 students in the control and treatment groups) and sixth graders (8 students in the control and treatment groups). The subjects that participated in this study were a subsample of a larger sample studied in the matrix research project (Victori et al 2010). The subsample

used in this study, then, was made up of participants that had only received regular EFL lessons in the school, so students that had had extracurricular English lessons were discarded, as well as those students with learning difficulties.

In October 2006, then, before the CLIL project was implemented, oral tasks were administered to the control groups (5th and 6th graders) while in October 2009, after having implemented CLIL for three years (which means 105 extra hours of exposure to English), data from the treatment groups was collected (see Table 3.2.1).

Table 3.2.1 Participants in the study, English exposure and data collection times

Groups	Grade	English lessons received	Data Collection Time
A Non-CLIL Control- 8 subjects	5	1 hr/week Instrumental English in grades 1 & 2 2 hrs/week Instrumental English in grades 3 & 4 3 hrs/week Instrumental English in grade 5	October 2006
B CLIL Treatment- 8 subjects	5	1 hr/week Instrumental English in grades 1 & 2 2 hrs/week Instrumental English in grades 3 & 4 3 hrs/week Instrumental English in grade 5 1 hr/week CLIL (<i>Science</i>) in grades 3,4 & 5	October 2009
C Non-CLIL Control- 8 subjects	6	1 hr/week Instrumental English in grades 1 & 2 2 hrs/week Instrumental English in grades 3 & 4 3 hrs/week Instrumental English in grades 5 & 6	October 2006
D CLIL Treatment- 8 subjects	6	1 hr/week Instrumental English in grades 1 & 2 2 hrs/week Instrumental English in grades 3 & 4 3 hrs/week Instrumental English in grades 5 & 6 1 hr/week CLIL (<i>Science</i>) in grades 4,5,6	October 2009

The study presented here is not a longitudinal study, which means that the subjects within CLIL and non-CLIL groups do not belong to the same promotion year. Therefore, in order to make sure that the groups were comparable, a T-test was carried out to see whether there were significant differences in their marks for the subjects of Catalan and Spanish. No statistically differences were found between the groups, which

indicated that CLIL and non-CLIL groups in grades 5 and 6 could be compared (Groups A and B: $p=0.39>0.05$; Groups C and D: $p=0.42>0.05$).

As seen from Table 3.2.1, the total amount of English exposure learners received from 2006 to 2009 was not kept constant between CLIL and non-CLIL groups. The effects of not having kept constant amount of exposure and the fact that CLIL learners received 105 extra hours of English exposure will be discussed in the discussion section.

3.3 Data Collection

3.3.1 Procedures

Data for the two groups (control and treatment) was collected at two different times. As mentioned before, in October 2006 a research group from the Universitat de Barcelona (UB) was in charge of interviewing and administering the oral tasks to the students that make up the control group. The students were interviewed and asked to tell a story individually. The same tasks were administered three years later, in October 2009, to the treatment groups. The tasks were recorded using a SONY IC Recorder ICD Mx20.

3.3.2 Data Collection Instruments

In order to analyse students' oral skills in English two different tasks were administered: an oral interview and a narrative task. Both tasks had been previously used and validated by the BAF project (*The Barcelona Age Factor Project*) (Muñoz 2006) with students of similar ages from various schools in Barcelona.

3.3.2.1 Oral Interview

The interview consisted in asking a number of questions related to students' personal life (name, age and family), their daily routines (the time they get to school or finish school, their free-time activities) and their house (number of rooms and a description of their bedroom). In addition to this, the interviewer also invited the student

to ask her, the interviewer, some questions. The interview consisted of fifteen questions, the majority of which were open questions that could not be answered with a yes/no. Besides, most of the questions were in the present tense, except two which used the past simple and the future 'will' (see Appendix A1 for the interview).

3.3.2.2 Narrative Task

Right after the interview, students were shown a series of pictures which told a story. The students were asked to tell the story using the images provided. When students found it hard to tell the story in English, the interviewer asked them some key questions (which were the same for all students) to help them produce some words in English (see Appendix A2 for the story).

4. ANALYSIS

4.1 CAF: Definition and Measures

The focus of the present study is to investigate the differences in the three dimensions of L2 English oral performance (Complexity, Accuracy and Fluency) among students that had received CLIL and regular EFL lessons. To do so, an analytic approach for the analysis of the data was carried out.

As many researchers claim (Housen & Kuiken 2009, Norris & Ortega 2009, Palloti 2009), the study of Complexity, Accuracy and Fluency (CAF) within Second Language Acquisition has been one of the most investigated aspects in L2 production since the 1990s. However, as Housen and Kuiken (2009: 2) point out “none of these three constructs is uncontroversial and many questions remain, including such fundamental questions as how CAF should be defined as construct”. As can be seen from the definitions of CAF provided by Skehan and Foster (1999) in Table 4.1.1, “complexity, accuracy and fluency are each quite complex subsystems with multiple parts” (Norris & Ortega 2009: 556).

Table 4.1.1 Definitions of CAF by Skehan and Foster (1999)

Construct	Definition
Fluency	The capacity to use language in real time, to emphasize meanings, possibly drawing on more lexicalized systems.
Complexity	The capacity to use more advanced language, with the possibility that such language may not be controlled so effectively. This may also involve a greater willingness to take risks, and use fewer controlled language subsystems. This area is also taken to correlate with a greater likelihood of restructuring, that is, change and development in the inter-language system.
Accuracy	The ability to avoid error in performance, possibly reflecting higher levels of control in the language as well as a conservative orientation, that is, avoidance of challenging structures that might provoke error.

Taking into account the various meanings and implications for research each of the constructs conveys and the research that has been done so far, some of the most relevant aspects under consideration within SLA research regarding CAF as well as the measures selected for the present study will be presented. Firstly, an account of the aspects of CAF that will be the focus of this study will be given. Secondly, the most commonly used measures for the analysis of each construct available from research will be presented and, finally, the different measures selected for the purposes of this study will be briefly discussed.

4.1.1 Complexity

To start with, the term *complexity* can refer to various aspects of L2 performance such as “lexical, interactional, propositional and various types of grammatical complexity” (Palloti 2009: 593). For the purposes of this study, however, the term complexity will be understood, on the one hand, as the amount of subordination and coordination produced by the participants (i.e. syntactic complexity); and on the other, as the amount and variety of grammatical categories used by the learners (i.e. lexical complexity), in particular, the amount and proportion of verbs and nouns as measured by a verb/noun ratio.

As for the measures that have been typically used in the analysis of complexity in SLA, Norris & Ortega (2009) present the following table:

Table 4.1.1.1 Selection of studies on CAF and complexity measures

Central focus of calculation	Measures	Key illustrative references
Length (in words, morphemes, characters, etc.)	Mean length of utterance Mean length of T-unit Mean length of c-unit Mean length of clause	Brown (1973) Hunt (1965) Loban (1976) Scott (1988)

Amount of subordination	Mean number of clauses per T-unit Mean number of clauses per c-unit Mean number of clauses per AS-unit Mean number of dependent or subordinate clauses per total clauses	Elder and Iwashita (2005) Skehan and Foster (2005) Michel et al. (2007)
Amount of coordination	Coordination Index	Bardovi-Harlig (1992)
Variety, sophistication, and acquisitional timing of grammatical forms used in production	Elaboration Index Index of Productive Syntax	Loban (1976) Scarborough (1990)
Total frequency of use of certain forms considered to be sophisticated	Raw tallies of certain verbal morphology (e.g. tensed forms, passive voice), classes of verbs (e.g. imperatives, auxiliaries, conditionals, modals), syntactic structures (e.g. comparatives, infinitival sentences, conjoined clauses, wh-clauses), etc.	Ellis and Yuan (2005) Robinson (2007)

The main concern of this study regarding syntactic complexity was the amount of subordination and coordination produced by the participants in the study. It is worth pointing out that coordination has not been commonly used as a complexity measure. However, it is believed to be a better predictor than subordination for syntactic complexity when dealing “with incipient levels of L2 competence” (Norris & Ortega, 2009: 558), as Bardovi- Harlig (1992) states in her study. Thus, taking into account the type of language produced by the participants in the study, it was decided to use the percentage of clauses (both coordinated and subordinate altogether) to measure syntactic complexity. The reason why subordination and coordination were analysed together was because the participants in this study were quite young and would not probably show such an advanced level of the foreign language so as to use subordination; coordinated clauses, on the other hand, are believed to be much more common in primary students’ speech.

The criteria used to identify coordinated and subordinate clauses were the ones presented by Foster et al (2000). According to them, coordinated verb phrases would be considered to belong to the same unit (AS-unit), thus, seen as different clauses, as long

as there is a pause shorter than 0.5 seconds between them and the first phrase is unmarked by a falling or rising intonation. Regarding subordination, they propose that a subordinate clause consists “minimally of a finite or a non-finite verb plus at least one other clause element”.

According to Norris & Ortega (2009), amount of subordination and coordination has been generally measured by dividing the number of clauses per a specific unit of analysis (i.e. T-unit, C-unit or AS-unit among others) resulting in the mean number of clauses per unit (see Table 4.1.1.2 for definitions of the units).

Table 4.1.1.2 Definitions of the main units of analysis (in Foster et al 2000)

Unit	Definition
T-Unit	‘One main clause with all subordinate clauses attached to it’ (Hunt, 1965:20). ‘One main clause plus whatever subordinate clauses that happen to be attached to or embedded within it’ (Hunt, 1966:735). ‘The shortest units into which a piece of discourse can be cut into without leaving and sentence fragments as residue’ (Hunt, 1970:189). ‘A main clause plus all subordinate clauses and non-clausal structures attached to or embedded in it’ (Hunt, 1970:4).
C-Unit	‘Utterances, for example, words, phrases and sentences , grammatical or ungrammatical which provide referential or pragmatic meaning’ (Pica et al, 1989:72)
AS-Unit	‘A single speaker’s utterance consisting of an independent clause or subclausal unit, together with any subordinate clause(s) associated with either’ (Foster et al, 2000:365)

Concerning the unit of analysis, the unit selected was the AS-unit (Analysis of Speech Unit) as proposed by Foster et al (2000) instead of the T-unit due to the fact that, according to them, the segmentation of oral data into T-units involves a series of challenges and problems when dealing with phenomena underlying oral data such as repetitions, hesitations and other residual fragments which the AS-unit seems to overcome by providing a clear and comprehensive definition of the unit. In addition to Foster et al’s suggestions (2000) to use the AS-unit, it is also worth pointing out the results obtained by Evnitskaya (2008) in comparing which unit (T-unit, Idea unit or AS-

unit) seemed the most suitable for the segmentation of the oral productions of CLIL students to analyse complexity:

So, from the analysis of three research tools chosen for the present study it can be concluded that the AS-unit resulted to have several serious advantages over the T-unit and the Idea-unit: (a) it was able to resolve the methodological issues in segmentation arisen by the T-unit, (b) it turned out to be better applicable and more appropriate for dividing our data into units due to its clear definition and detailed author's guidelines on the segmentation, and (c) in taking complexity measures it revealed higher exactness and sensitivity to even small changes in learners' monologic oral production.

According to Foster et al (2000: 365), then, the AS unit is "a single speaker's utterance consisting of an independent clause or subclausal unit, together with any subordinate clause(s) associated with either." They continue defining the types of clauses present in the explanation of the AS-unit as follows: "An independent clause (see example 1 and 2) will be minimally a clause containing a finite verb and an independent subclausal unit (see examples 3, 4 and 5) will consist of: either one or more phrases which can be elaborated to a full clause by means of a recovery of ellipped elements or a minor utterance".

- (1) That's right [AS = independent clause]
- (2) You go to the main street of Twickenham [AS=independent clause]
- (3) A: How long you stay here?
B: Three months [AS= subclausal unit, ellipsis]
- (4) Oh poor man [AS= subclausal unit, minor utterance]
- (5) Than you very much [AS= subclausal unit, minor utterance]

Having observed the type of speech young learners of English produced, it was decided to analyse the data using *level two* of analysis as proposed by Foster et al (2000). This type of analysis is used with highly interactional data with a great proportion of one-word utterances and other minor utterances whose inclusion in the analysis might lead to a distortion of the results to study overall oral performance. Hence, on the basis of that it was decided to exclude such minor utterances so that the use of one-word utterances produced by students did not affect the analysis of their oral performance. See examples below of the great number of one-word utterances learners in this study produced:

- (1) Investigator: What time did you arrive here this morning?
Subject (Non-CLIL/ grade 5): Nine.
- (2) Investigator: At half past five what will you do?
Subject (Non-CLIL/ grade 5): Football.
- (3) Investigator: When will you leave?
Subject (Non-CLIL / grade 6): Five.
- (4) Investigator: How many brother and sisters do you have?
Subject (Non-CLIL/ grade 6): Brother Marc.
- (5) Investigator: How old are you?
Subject (CLIL /grade 5): Ten.
- (6) Investigator: Do you like this school?
Subject (CLIL / grade 5): Water.
- (7) Investigator: Do you like the school?
Subject (CLIL / grade 6): Yes.
- (8) Investigator: What activities do you do when you finish school?
Subject (CLIL / grade 6): Basketball.

As for lexical complexity, the most widely used measure both in First and Second Language Acquisition has been TTR (Type Token Ratio), which is obtained by calculating the number of different words used divided by the total number of words. However, as Vermeer (2000) claims, the TTR measure may not capture progress in the acquisition of vocabulary at specific stages of acquisition and it is sensitive to length of text (MacWhinney 2000, Vermeer 2000). That is why it was discarded as a measure for lexical complexity. The measure selected, then, was the verb/noun ratio which has proved to be a good indicator of lexical complexity at beginner levels (Broeder et al 1993, Muñoz 2006) on the basis of previous research findings indicating that children learn and use nouns before verbs. That is to say, as learners' interlanguage develops the proportion of verbs in relation to nouns increases. Therefore, one of the objectives of the study was to see whether learners in CLIL contexts used a higher proportion of verbs to nouns due to the type of exposure received.

4.1.2 Accuracy

As Iwashita et al (2008) indicate, accuracy can be measured in terms of global accuracy (where all errors are considered) and specific types of errors. According to them (ibid: 31), the global accuracy approach seems to be "the most comprehensible in that all errors are considered". Taking this into account, the global approach was selected to investigate accuracy in this study.

Concerning the most commonly used accuracy measures, Table 4.1.2.1 below shows a selection of studies on Accuracy, taken from Ellis (2009), along with the accuracy measures used in each of them:

Table 4.1.2.1 Selection of studies on CAF and accuracy measures

Study	Accuracy Measures
Foster and Skehan (1996)	Error-free clauses Lexical errors
Skehan and Foster (1997)	Error-free clauses
Yuan and Ellis (2003)	Error-free clauses % of correct verb forms
Tajima (2003)	% Error-free clauses
Sangarun (2005)	% Error-free clauses Errors per 100 words

Even though the percentage of error-free clauses has been one of the most widely used measures to analyse accuracy, the AS-unit was chosen as the unit to analyse accuracy as its definitions as well as the guidelines to be identified presented by Foster et al (2000) were much clearer and specific to the analysis of oral data. The implications of having used this measure will be discussed in the discussion section.

The measure used, then, was the percentage of error-free AS-units which was obtained by dividing the number of error-free AS-units by the total number of AS-units multiplied by 100. Error-free AS-units were considered as such when they did not contain any error (lexical, syntactic or morphological). Phonetic errors, on the other hand, were overlooked and ignored as they did not affect communication.

4.1.3 Fluency

Finally, the third element which makes up the CAF construct is fluency. As Palloti (2009: 591-2) presents in his article, “fluency is a multidimensional construct, in which subdimensions can be recognised such as breakdown fluency, repair fluency or speed fluency”. The subdimension under investigation in this study was speed fluency, as one of the aims of the study was to determine whether CLIL learners produced greater amounts of language than non-CLIL learners. Table 4.1.3.1 shows a selection of studies (taken from Ellis 2009) with some of the most common measures to analyse fluency:

Table 4.1.3.1 Selection of studies on CAF and fluency measures

Study	Measures
Mehnert (1998)	Number of pauses Total pausing time Length of run Syllables per minute
Ortega (1999)	Pruned speech rate
Kawauchi (2005)	Amount of speech (number of words) Percentage of repeated words
Elder and Iwashita (2005)	Number of repetitions, false starts, reformulations, hesitations and pauses divided by total speaking time
Tavokoli and Skehan (2005)	Speech rate Total silence Various repair measures (e.g. false starts) and length of run.
Gilabert (2007)	Pruned speech rate (syllables per minute)

Taking into account the profile of the learners in the study and the type of speech produced, the measure selected to determine the degree of oral fluency was speech rate in words (SRW) which was obtained by dividing the number of words produced by the total task time in minutes including pause time (Mora 2006). According to many

researchers (Kormos & Dénes 2004, Mora 2006), speech rate is a reliable measure to analyse oral fluency.

Following Mora’s guidelines (2006), the following considerations were taken into account to carry out the word counts. Firstly, word counts excluded L1 words, proper nouns or non-existent words used by the subjects. Secondly, words or parts of speech that had been previously used by the researcher and that the subjects incorporated as part of their speech were also excluded. Thirdly, in the case of repetitions, false starts and rephrasing only the words in the final phrase or sentence were computed. Finally, contractions were counted as two words and exclamations and other onomatopoeic sounds were excluded.

4.1.4 Measures Selected for the Study

To sum up, the measures used in this study were selected on the basis of their applicability to the data obtained and previous research on CAF. Therefore, the measures chosen were: the percentage of coordinated and subordinate clauses for syntactic complexity, the verb/noun ratio for lexical complexity, the percentage of error-free AS-units for accuracy and speech rate in words for fluency (see Table 4.1.4.1).

Table 4.1.4.1 Measures used in the study for the three Aspects of L2 Oral Performance

Aspect of L2 Oral Performance		Measures	Examples of productions	
Complexity	Syntactic	% subordinate & coordinated clauses	CLIL	There is a table [for I study] [I like read], [play volleyball] and [play with my dog]
			NON-CLIL	[Watching TV] [plays the computers] [Painting] and [plays the guitar]
			CLIL	The dog <i>eat</i> the food. Then the girl and the boys <i>goes</i> to the mother.

	Lexical	% verb/noun ratio	NON-CLIL	The dog in the basket. Goodbye a mother.
Accuracy		% Error-Free AS-units	CLIL	I play basketball. [Error-free AS] I have one brother [Error-free AS]
			NON-CLIL	Plays basket. [AS] I am swim. [AS]
Fluency		Speech rate in words (SPW)	CLIL	Interview (grade 5): 35.86 words per minute Narrative (grade 6): 76.19 words per minute
			NON-CLIL	Interview (grade 5): 9.74 words per minute Narrative (grade 6): 23.30 words per minute

4.2 Data Analysis Procedures

The recordings were transcribed and analysed using CLAN (Computerized Language Analysis) available at the CHILDES website¹. Transcripts were coded, following the CHAT transcription symbols, for complexity (both syntactic and lexical), accuracy and fluency (see Appendix B). The results obtained from the calculations for the different measures were entered into SPSS 16.0 (Statistical Package for the Social Sciences) so as to investigate the differences between the two groups. Due to the reduced size of the sample that made up each of the four groups (8 students), non-parametric tests were used (Mann-Whitney U) in order to see whether there were statistically significant differences between the groups.

¹ <http://childes.psy.cmu.edu/>

5. RESULTS

5.1 Descriptive Data Analysis

The mean results as well as the standard deviations obtained for the different measures selected to analyse oral Complexity, Accuracy and Fluency among CLIL and non-CLIL students in years 5 and 6 of primary school are displayed in the tables below.

5.1.1 5th year primary students

Interview task

Table 5.1.1.1 shows the Complexity, Accuracy and Fluency mean results obtained from the interview task by 5th graders.

Table 5.1.1.1 Complexity, Accuracy and Fluency mean scores for the interview task

	N	SYNTACTIC COMPLEXITY		LEXICAL COMPLEXITY		ACCURACY		FLUENCY	
		% CLAUSES	Std. Dev.	% VERB/NOUN RATIO	Std. Dev.	% EFAS	Std. Dev.	SRW	Std. Dev.
5th year CLIL students	8	6.625	14.232	58.370	18.097	53.610	13.822	9.356	6.586
5th year non-CLIL students	8	11.457	23.959	53.568	12.891	47.880	24.513	6.770	3.225

* EFAS: Error-free As-unit / SRW: Speech rate in words

As can be observed from the descriptive data displayed in table 5.1.1.1, non-CLIL students outperform their peers in CLIL group in the amount of clauses used. As for lexical complexity, the data in the table shows similar mean scores between CLIL and non-CLIL learners regarding the proportion of verbs to nouns used, being the scores for the CLIL group slightly higher, which indicates that the CLIL group used more verbs than the non-CLIL group. Similarly, the data presented shows that CLIL students obtained slightly higher results than non-CLIL students in the percentage of error-free AS-units produced during the interview task. Finally, fluency mean scores as measured by speech rate in words are higher for CLIL students than for non-CLIL students.

Narrative task

Table 5.1.1.2 displays the mean results for Complexity, Accuracy and Fluency obtained from the narrative task by 5th graders.

Table 5.1.1.2 Complexity, Accuracy and Fluency mean scores for the narrative task

	N	SYNTACTIC COMPLEXITY		LEXICAL COMPLEXITY		ACCURACY		FLUENCY	
		% CLAUSES	Std. Dev.	% VERB/NOUN RATIO	Std. Dev.	% EFAS	Std. Dev.	SRW	Std. Dev.
5th year CLIL students	8	15.000	42.426	25.445	16.704	21.250	36.425	15.913	13.569
5th year non-CLIL students	8	0	0	16.270	20.517	13.750	25.599	21.252	10.376

* EFAS: Error-free As-unit / SRW: Speech rate in words

As can be seen from the data presented in Table 5.1.1.2, CLIL students obtained higher mean scores than non-CLIL students in the percentage of clauses produced. Likewise, students in the CLIL group obtained higher scores in the ratio between verbs and nouns. Concerning accuracy, the data in the table indicates that CLIL students produced a higher number of error-free AS-units than non-CLIL students. Regarding fluency scores, on the other hand, non-CLIL students show higher results than CLIL students in speech rate.

5.1.2 6th year primary students

Table 5.1.2.1 displays the Complexity, Accuracy and Fluency mean results obtained in the interview task by 6th graders.

Table 5.1.2.1 Complexity, Accuracy and Fluency mean scores for the interview task

	N	SYNTACTIC COMPLEXITY		LEXICAL COMPLEXITY		ACCURACY		FLUENCY	
		% CLAUSES		% VERB/NOUN RATIO		% EFAS		SRW	
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
6th year CLIL students	8	9.993	11.766	62.173	15.206	60.581	19.692	19.945	9.722
6th year non-CLIL students	8	5.356	15.149	67.481	42.233	58.130	13.759	10.502	3.463

* EFAS: Error-free As-unit / SRW: Speech rate in words

Regarding syntactic complexity, CLIL students outperform non-CLIL students in the percentage of clauses they produced. In terms of lexical complexity, students in the non-CLIL group present a slightly higher verb/noun ratio scores as they used more verbs than the CLIL-group. As for accuracy, the data displayed in the table shows that CLIL and non-CLIL students obtained similar scores as regards the percentage of error-free AS-units, although they are slightly higher for the CLIL group. Finally, CLIL students outperform their peers in the non-CLIL group in the fluency measure.

Narrative

The data presented in table 5.1.2.2 unfolds the Complexity, Accuracy and Fluency mean scores obtained by 6th graders in the narrative task.

Table 5.1.2.2 Complexity, Accuracy and Fluency mean scores for the narrative task

	N	SYNTACTIC COMPLEXITY		LEXICAL COMPLEXITY		ACCURACY		FLUENCY	
		% CLAUSES		% VERB/NOUN RATIO		% EFAS		SRW	
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
6th year CLIL students	8	38.466	47.926	39.233	30.668	5.847	8.337	34.293	24.820
6th year non-CLIL students	8	0	0	19.721	25.911	0	0	16.423	4.875

* EFAS: Error-free As-unit / SRW: Speech rate in words

As observed from Table 5.1.2.2, the mean results obtained for syntactic complexity by 6th graders show higher mean results in favour of CLIL students, as well as the results obtained for lexical complexity which indicate that the CLIL group used more verbs than the non-CLIL group. As regards accuracy, non-CLIL students did not produce any error-free AS-units so the results are higher for the CLIL group. As for fluency, CLIL students outperform their peers in the non-CLIL group.

5.2 Statistical Data Analysis

In order to see whether the differences in the means obtained for the different measures to analyse Complexity, Accuracy and Fluency were significant non-parametric tests were carried out (Mann-Whitney U). Tables 5.2.1, 5.2.2, 5.2.3 and 5.2.4 display the results obtained from the tests as well as the significance values.

As for the level of significance used in this study, it is worth pointing out that the alpha level used was $p < 0.10$ as this is a reliable level when dealing with small size groups (e.g. $n=20$) in order to avoid Type II Errors (i.e. power of a test) (Stevens 1996, Pallant 2007).

As can be observed from Tables 5.2.1 and 5.2.2, and despite the fact that the descriptive data presented previously showed differences in most of the measures in favour of CLIL students, there are no statistically significant results in any of the measures used to investigate oral skills between CLIL and non-CLIL students for 5th graders in any of the tasks ($p > 0.10$).

Table 5.2.1 Results obtained by 5th year students in the interview task

	COMPLEXITY		ACCURACY	FLUENCY
	% CLAUSES	% VERB/NOUN RATIO	% EFAS	SRW
Mann-Whitney U	31,000	26,000	29,500	26,000
Wilcoxon W	67,000	62,000	65,500	62,000
Z	-,138	-,632	-,265	-,630
Asymp. Sig. (2-tailed)	,890	,527	,791	,529

* EFAS: Error-free As-unit / SRW: Speech rate in words

Table 5.2.2 Results obtained by 5th year students in the narrative task

	COMPLEXITY		ACCURACY	FLUENCY
	% CLAUSES	% VERB/NOUN RATIO	% EFAS	SRW
Mann-Whitney U	28,000	19,500	28,500	21,000
Wilcoxon W	64,000	55,500	64,500	57,000
Z	-1,000	-1,325	-,447	-1,155
Asymp. Sig. (2-tailed)	,317	,185	,655	,248

* EFAS: Error-free As-unit / SRW: Speech rate in words

Unlike the results obtained by 5th year students, Tables 5.2.3 and 5.2.4 show greater statistically significant differences between CLIL and non-CLIL students for 6th graders. There are significant differences in fluency in the interview task ($p=0.036<0.10$); and in syntactic complexity ($p=0.027<0.10$), in accuracy ($p=0.064<0.10$) and fluency ($p=0.074<0.10$) in the narrative task.

Table 5.2.3 Results obtained by 6th year students in the interview task

	COMPLEXITY		ACCURACY	FLUENCY
	% CLAUSES	% VERB/NOUN RATIO	% EFAS	SRW
Mann-Whitney U	22,000	30,000	30,500	12,000
Wilcoxon W	58,000	66,000	66,500	48,000
Z	-1,278	-,210	-,158	-2,100
Asymp. Sig. (2-tailed)	,201	,834	,875	,036

* EFAS: Error-free As-unit / SRW: Speech rate in words

Table 5.2.4 Results obtained by 6th year students in the narrative task

	COMPLEXITY		ACCURACY	FLUENCY
	% CLAUSES	% VERB/NOUN RATIO	% EFAS	SRW
Mann-Whitney U	16,000	19,000	20,000	15,000
Wilcoxon W	52,000	55,000	56,000	51,000
Z	-2,208	-1,386	-1,849	-1,785
Asymp. Sig. (2-tailed)	,027	,166	,064	,074

* EFAS: Error-free As-unit / SRW: Speech rate in words

5.3 Qualitative Data Analysis

In order to further analyse the data produced by the participants a more qualitative analysis was undertaken on the type of language produced by the participants. Thus, some of the most relevant aspects found in the data collected, which are not reflected in the quantitative analysis, will be presented and commented on in this section (see Appendix C for a sample of learners' productions).

Upon close examination of the data, differences were observed in the number of answers in English as well as one-word answers produced during the interview task and in the use of subordination and coordination produced by the participants in each of the groups in the two tasks.

As for the number of answers produced in English during the interview task by CLIL and non-CLIL learners, it is worth pointing out that CLIL groups both in year 5 and 6 produced a higher number of answers (see Table 5.3.1).

Table 5.3.1 Mean results of the number of answers in English produced in the interview task

	5 th graders	6 th graders
Non-CLIL students	14	17,87
CLIL students	18,37	19,37

In terms of the number of one-word answers used during the interview task, students in the control groups produced a higher number than students in the treatment groups (see Table 5.3.2).

Table 5.3.2 Mean percentage of the total number of one-word answers in the interview task

	5 th graders	6 th graders
Non-CLIL students	57,18%	37,29%
CLIL students	38,54%	18,87%

Some examples of the type of answers students in the control groups produced are presented below:

- (9) INV: How old are you?
 SUB: hmmp ## eleven.
 INV: At five what will you do?
 SUB: House.
- (10) INV: What do you like to do in your free time?
 SUB: Football.
 INV: At half past five what will you do today?
 SUB: Football.

Unlike students in the control groups, CLIL students tried to produce longer and complete utterances. Some instances of the language produced by the treatment groups are the following:

- (11) INV: How old are you?
 SUB: I'm eleven years old.
 INV: What did you do last weekend on Saturday and Sunday?
 SUB: I go to the hmmp [/] I go to the Sabadell.
- (12) INV: What will you do when you finish school?
 SUB: Today [/] today ...nothing I'm go to home.
 INV: What did you last weekend?
 SUB: hmmp I play volleyball and then I go to eat with family.

In order to see whether differences in the number of answers and one-word answers produced by CLIL and non-CLIL students in grades 5 and 6 were statistically significant, non-parametric tests were carried (see Table 5.3.3 for results).

Table 5.3.3 Statistical results for the number of answers in English and one-word answers produced by 5th and 6th graders during the interview task

	5 th graders		6 th graders	
	Number of answers in English	Number of one-word answers	Number of answers	Number of one-word answers
Mann Whitney- U	11,000	27,000	25,500	14,500
Z	-2,217	-,531	-,687	-1,861
Asym. Sig. (2-tailed)	,027	,595	,492	,063

As seen from Table 5.3.3, CLIL learners in year 5 obtained statistically significant results in the number of answers produced in the interview task ($p= 0.027 < 0.10$) whereas CLIL students in year 6 had statistically significant results in the number of one-word answers ($p= 0.063 < 0.10$).

As for the use of subordination during the interview task, it is worth pointing out that none of the students in the non-CLIL groups produced subordinate sentences. Only two students out of the sixteen that made up the treatment groups (one in year 5 and the other one in year 6) made use of subordination.

- (13) There is a table [for I study].
 (14) I go [to eat with my family].

As regards coordination, most students used coordination of verb phrases. Three students in the non-CLIL groups (two in year 5 and one in year 6) made coordinated sentences of the following type:

- (15) [Painting] and [plays the guitar].
 (16) [Watching tv] [play the computers].
 (17) [Play play station], [play football], [play]

Even though students in the CLIL groups used similar structures to produce coordination, the type of coordination they produced was more elaborate in terms of the number of elements/phrases present in the clauses. See examples below:

- (18) [Played the football] and [Sunday visit my grandfathers].
 (19) I [like read], [play volleyball] and [play with my dog].
 (20) [Playing football in my house] and [speak with my trainer of judo].

As regards the narrative task, the most salient aspects which will be described are the amount of coordination and subordination and the use of phrasal verbs. First of all, it is important to highlight that students in the control group, both in grades 5 and 6, did not produce a single utterance containing subordination whereas there were two students in grade 6 within the CLIL group that said the following:

- (21) The children is surprise [for the dog is eat for the food in the basket].
- (22) [When the children go to the country and to the mountain] see the dog.

As for the use of coordination, it is also relevant to mention that only students in the treatment groups (four students in year 6 and one student in year 5) made use of them in the narrative task. The type of coordination produced can be seen in the following examples:

- (23) [The girl and the boy go at the park] and [the mother is in the house].
- (24) [Open the basket] and [see the dog].

Finally, another aspect to comment on is the fact that only one of the 32 participants in the study used a phrasal verb. The participant belonged to the treatment group in year 5 and used the phrasal verb *cut up* when telling the story:

- (25) The mother *cut up* the cake.

Summing up, the statistical analyses carried out in this study indicate that there are no significant differences between CLIL and non-CLIL groups in grade 5 in any of the tasks administered to investigate L2 oral performance, in spite of the fact that the descriptive data and the qualitative analyses show that the CLIL groups outperform the non-CLIL groups in many aspects of language production.

The results from students in grade 6, on the contrary, show that there are significant differences in fluency in the interview task and in syntactic complexity, accuracy and fluency between CLIL and non-CLIL students in the narrative task. In addition, the qualitative analysis of students' productions confirms the statistical differences derived from the quantitative analyses and adds further differences in the type and amount of language produced by CLIL and non-CLIL students.

6. DISCUSSION

The results of this study seem to suggest that the amount of CLIL instruction learners in this study received may have had a positive influence on some aspects of students' oral performance in English, as learners within the CLIL groups outperformed non-CLIL learners in areas such as fluency and syntactic complexity. However, the results are not conclusive and further research which overcomes the limitations observed in this study is needed to confirm the results obtained. Despite that, several conclusions on the factors that might have influenced the results as well as their implications can be drawn from the analyses carried out.

First of all, it is important to mention that the fact that CLIL learners received 105 hours of extra English exposure that the non-CLIL groups did not receive may have influenced the results obtained, as the gains CLIL learners show in the measures used to analyse their oral production skills in English are likely to be due to the greater amount of exposure received not to the type of instruction. As previously mentioned, several pieces of research conducted in Spain on the effects of CLIL on students' linguistic competence have suggested the superiority of CLIL instructional contexts over EFL settings on the basis of research projects that did not keep amount of exposure constant between the two groups. However, among these pieces of research, efforts have been made in order to diminish the effect of the lack of control over amount of exposure. Miret (2009) and Navés & Victori (2010), for instance, found that CLIL learners showed similar or better scores in some of the aspects analysed (e.g. syntactic and lexical complexity and fluency) than learners two and three years ahead who had only been exposed to EFL exposure. Such results, then, seem to point out that when amount of exposure is kept similar, CLIL learners still outperform non-CLIL learners.

Despite the lack of control over amount of exposure, the results of this study seem to suggest that CLIL may have a positive influence on students' oral production skills. Firstly, as regards the first dimension in CAF, syntactic complexity, it is worth highlighting that significant differences were observed in grade 6 in favour of CLIL learners in the narrative task. In addition, 6th graders within the CLIL group also obtained slightly higher mean scores in syntactic complexity in the interview task. As for 5th graders, CLIL learners achieved higher mean scores in the narrative task whereas

non-CLIL learners outperformed CLIL learners in the interview task. In spite of that, the qualitative analysis on the degree of syntactic complexity exhibited by CLIL and non-CLIL learners, as well as the descriptive data, suggest that the type of language produced by CLIL learners was more elaborate as regards the length of coordinated clauses and the use of subordination, which was only produced by CLIL learners. Moreover, it is important to highlight that non-CLIL students did not produce a single clause during the narrative task, which might be a clear indicator that the amount of CLIL exposure learners received promoted the use of more complex and sophisticated syntactic structures.

However, it is important to point out that the percentages obtained for syntactic complexity are generally low, which may indicate that the measure used in the analysis was not appropriate to analyse the type of language produced by the learners in this study. Besides, as mentioned in the method section, *complexity* includes a variety of aspects such as interactional, propositional and other types of grammatical complexity. The aspect analysed in this study was amount of subordination and coordination, which may be too difficult to find among L2 English learners in primary education as they may not be cognitively prepared to produce such structures. The fact that, in general, CLIL and non-CLIL learners obtained similar scores in the use of subordination and coordination might confirm such hypothesis since, according to the data obtained, subordination was not produced until grade 6 when learners were between 11 and 12 years old. Hence, in the light of the results obtained, it seems clear that other aspects of syntactic complexity should be analysed when dealing with young learners' speech. Aspects such as length of unit/utterance might be more appropriate when dealing with this type of speech than amount of subordination and coordination if we consider the fact that learners at these stages scarcely use complex syntactic structures such as subordination in their L1.

Besides, taking into account that amount of exposure was not kept constant between the two groups, a higher number of significant differences were expected in terms of syntactic complexity, as CLIL learners had 105 extra hours of English exposure. The reasons why such differences were not found are mainly two. The first reason is, as previously discussed, the inadequacy of the measure selected to analyse syntactic complexity. However, even though the measure selected did not seem to

obtain the results expected, the role of the CLIL teacher may have also played an important part in the results obtained. As pointed out by Victori et al (2010), whose study explored the effects of CLIL on student's receptive skills and grammar using the same participants as the study presented here, the CLIL teacher who was in charge of delivering the CLIL lessons during the first two years of the implementation presented some important limitations. Several classroom observation sessions showed that the teacher's English proficiency was very limited, which means that the linguistic model learners were exposed to was inappropriate. The type of input learners received during the first two years seems to have heavily influenced the results obtained in this study. As Swain (1988) pointed out, the type of input learners receive in content-based language learning settings plays a crucial role in the development of learners' interlanguage. She claimed that one of the reasons why learners did not show any gains in their language learning was precisely because of the input they had received, which she labelled as *functionally restricted language*. The example of *functionally restricted language* she presents in her study is the limited and poor use of verb tenses. As already pointed out in this section, the linguistic model learners received from the first teacher was quite poor, which may account for the small number of significant differences between CLIL and non-CLIL groups.

Despite that, the results presented here for syntactic complexity suggest that CLIL exposure may promote the syntactic development and the use of more sophisticated syntactic structures among primary students, which seems to contradict Mewald (2007) and Dalton-Puffer's (2007) view of syntax as one of the areas of L2 oral performance which is unaffected by CLIL exposure.

Regarding lexical complexity, the results obtained from the verb/noun ratios to see whether the use of verbs in relation to nouns was higher for CLIL groups, indicate that there are no significant differences between CLIL and non-CLIL learners in grade 5. However, the results do show higher ratios for CLIL learners in the two tasks in grade 5, whilst non-CLIL learners in grade 6 obtained slightly higher ratios in the interview task. In the narrative task, on the other hand, CLIL learners in grade 6 obtained higher mean scores than the non-CLIL group. Despite the lack of significant results for lexical complexity, the fact that, in general, CLIL learners in this study used a higher proportion of verbs to nouns than non-CLIL learners confirms Jiménez et al's

(2007) results on vocabulary profiles between CLIL and non-CLIL learners, which indicates that CLIL learners used a higher number of verbs than non-CLIL learners, as well as Mewald (2007) and Várkuti's (2010) findings on the positive impact of CLIL on students' lexicon.

Even though the overall results suggest that CLIL learners unfold a higher degree of lexical complexity, it must be pointed out that the differences were not as marked as expected. As previously presented, significant differences were expected in favour of CLIL learners in vocabulary, however, the analysis of the data obtained shows that in some cases the verb/noun ratios used to investigate lexical complexity were quite similar between CLIL and non-CLIL learners. Once again, the measure selected might have been inadequate to analyse the type of language produced by the learners in this study. According to Broeder et al (1993), the proportion of verbs to nouns L2 learners produce is a reliable measure to analyse lexical complexity at very low levels of language proficiency (commonly found during the first grades in primary education). The results of this study seem to suggest that at higher levels of primary education (grade 5 and 6), the proportion of verbs to nouns is not an appropriate measure to analyse lexical complexity. As Broeder et al (1993: 159) claim, "above a certain proportion of verbs, the verb/noun ratio seems to become an unreliable index in spontaneous speech". In other words, learners at higher levels of primary education, as opposed to learners on their first years in primary education, seem to produce a similar number of verbs and nouns regardless of the type of instruction they have received, which indicates that the verb/noun ratio is inadequate to investigate lexical complexity among this type of learners.

Another reason which may explain the lack of significant differences in lexical complexity, in addition to the type of input received (i.e. *functionally restricted language*), is the fact that high levels of content-specific vocabulary do not necessarily relate to high levels of lexical complexity (Vermeer 2001). That is to say, CLIL learners may unfold a higher degree of lexical complexity as regards the number of content-specific words they know and can produce, whereas the degree of knowledge of vocabulary in general is likely to be quite low, as the type of exposure CLIL learners are exposed to is much more related to CALP (Cognitively Academic Language Proficiency) than to BICS (Basic Communication Skills) in which everyday language

plays an important role. As Vermeer (2001) suggests, lexical measures based on the frequency/difficulty of the words used by learners may be 'more fruitful'. Vermeer's (ibid) proposal gains special relevance within CLIL contexts, as the type of words CLIL learners are exposed to are less frequent (e.g. supercategories like *furniture* or *animals*) than the type of words that are generally used in EFL contexts (e.g. prototypes such as *chair* or *bird*). Thus, in the light of the results obtained it becomes crucial to find reliable measures such as the one presented by Vermeer (2001), in which lexical complexity is measured according to the difficulty or frequency of the words produced, in order to rigorously investigate lexical complexity in CLIL settings.

As for accuracy, the statistical analysis shows significant differences between CLIL and non-CLIL learners in grade 6 in the narrative task, indicating that non-CLIL learners produced more errors than CLIL learners in that task. In the interview task, however, CLIL and non-CLIL learners obtained similar scores. Regarding the results obtained for accuracy by 5th graders, CLIL learners obtained higher mean scores in accuracy than non-CLIL learners in the two tasks. Apparently, the results seem to point out that CLIL learners unfold a higher degree of accuracy than non-CLIL learners, which confirms the results obtained from previous research (Mewald 2007, Hüttner and Rieder-Büneman's 2007).

The scores obtained for accuracy by CLIL and non-CLIL learners are quite similar in some cases. The reason why the difference between CLIL and non-CLIL learners is so slight may be related to the type of input learners in CLIL settings received. As previously pointed out, the linguistic model learners were provided during the first two years of CLIL implementation was inadequate which might explain why learners in CLIL setting obtained so moderate scores in accuracy, in spite of the fact that they had received 105 hours of extra exposure. In addition to the type of exposure learners received, the measure used to analyse accuracy may also account for the results obtained. As Llanes & Muñoz (2009) point out, the percentage of error-free clauses is a much more reliable measure than the percentage of error-free AS-units when dealing with learners at early stages of foreign language acquisition such as primary learners.

As for the last dimension which makes up the CAF construct, fluency, significant differences were observed in the narrative and interview task among 6th

graders in favour of CLIL learners. These results are in line with previous research on the effects of CLIL on students' oral fluency (Mewald 2007, Lasagabaster 2008, Juan-Garau 2010), which indicate that CLIL learners are more fluent than non-CLIL learners. Regarding the results obtained by 5th graders for fluency, as already mentioned, there were no statistically significant differences in any of the two tasks between CLIL and non-CLIL learners, although the descriptive data showed that CLIL learners had higher mean scores in fluency in the interview task. In addition to the quantitative analyses of fluency, the qualitative analysis carried out on the amount of language produced by CLIL and non-CLIL learners shows that the number of one-word answers produced during the interview task was higher for non-CLIL groups indicating that CLIL learners produced longer chunks of language. Furthermore, significant differences were observed on this aspect in favour of CLIL learners in year 6, suggesting that CLIL learners used more words per answer than non-CLIL groups. These results are similar to those obtained by Ruiz de Zarobe (2007) and Mewald (2007) regarding the number of words per utterance produced by CLIL and non-CLIL learners.

The results from this study, then, seem to confirm previous research findings on the positive impact of CLIL programmes on students' oral performance in L2 English (Admiraal 2006, Mewald 2007, Lasagabaster 2008). However, it is also important to notice that the results obtained varied according to the task and grade tested. In other words, CLIL seems to have a much clearer impact on 6th graders than on 5th graders, which might be explained in terms of students' cognitive maturity, as previous research on second language acquisition has pointed out (Navés et al 2003). The lack of significant results among 5th graders might be a clear indicator that learners' cognitive maturity may play an important role in the language learning process. Despite that, it is also important to highlight that, in general, the results indicate that CLIL learners, either in grade 5 or 6, outperform their peers in the non-CLIL groups.

Moreover, the differences between the two groups (CLIL & non-CLIL) were much more relevant in the narrative task than the interview task, indicating that this type of task may capture greater differences between groups than the traditional interview. The study of how task type affects students' oral performance seems to suggest that CLIL learners performed better in the narrative task than in the interview task, which may be related to the use of BICS (Basic Communication Skills) and CALP (Cognitive

Academic Language Proficiency). According to Wolff (2005), CLIL lessons promote the development of CALP as learners are exposed to great amounts of academic language to express functions like comparing, hypothesizing or evaluation, and struggle to understand and express cognitively demanding content. That may explain why CLIL learners obtained modest scores in the interview task in which BICS play an important role.

Regarding the limited number of significant results, it is worth pointing out that, in spite of the differences observed between CLIL and non-CLIL groups, some results did not achieve significance, which might be related to the role of the first teacher students had during the first two years of CLIL implementation. Another reason that may account for the small number of significant results (apart from the reduced size of the sample used) is the approach undertaken for the analysis of the data collected. Most research reviewed in this study (Mewald 2007, Lasagabaster 2008, Ruiz de Zarobe 2008, San Isidro 2010) which reports significant differences between CLIL and non-CLIL learners carried out the analysis of students' oral skills using holistic scales, whilst this study used an analytic approach to the analysis of the data and, as previously pointed out, some of the measures used in the analysis did not capture the differences between the groups.

Another relevant aspect derived from this study has to do with the fact that the results obtained from the analysis of students' oral skills are not as positive as the results obtained by the same students in the rest of tests (dictation, listening, cloze test, writing test) used in the matrix project conducted by Victori et al (2010). The results from Victori et al's study (ibid) found significant differences in many more aspects of language proficiency in both grades, even though their analyses also report better results for 6th graders than 5th graders. One of the possible reasons that may explain why learners did not obtain such positive results in the oral tasks may be related to the fact that CLIL lessons promote the development of writing and reading skills, as most of the activities and tasks students perform in CLIL lessons have to do with writing and reading while very few focus on the development of students' oral skills. As Wolff states (2005: 18), "reading and writing skills are regarded as highly important in the CLIL classroom". The observation sessions carried out by Victori et al (2010) point out that, during the first two years of CLIL implementation, most activities focused on

vocabulary and most of the lesson was taught in the L1, which has clearly affected the poor results obtained in the oral tests, as learners in this study lacked the kind of oral input needed for oral language production. As previous researchers have suggested, one of the shortcomings of content-based approaches to the teaching of foreign languages is the low level of proficiency learners show in their productive skills. As Genesse (1994: 5) points out, several pieces of research prove that immersion students in Canada “are given very few chances to speak during class and even fewer opportunities to initiate the use of language”. Likewise, Wannagat’s study (2007) on speech distribution in a CLIL classroom in Germany found that only 18.8% of students’ turns were student initiated and did not answer questions made by the teacher, which seems to confirm that in CLIL lessons, as well as in other types of content-based instruction, students are given few opportunities to initiate talk. The observation sessions conducted in the school where this study took place report similar results as regards the lack of spontaneous interaction between students and the teacher or among students in L2.

As previously mentioned, the development of students’ oral skills is crucial for the development of their interlanguage. Moreover, as Swain (1993) suggested, the production of output may be necessary in order for learners to move from a semantic processing of the language to a syntactic processing through which a deeper learning of the language can take place. Thus, having seen the potential of output as regards second language learning and the results of this investigation, it is important to highlight the fact that CLIL programmes should pay more attention to the enhancement of students’ oral skills in the foreign language if we want CLIL to become a new teaching model which offers “quality of teaching and learning” (De Graaf et al 2009: 604). Even though the study provides empirical evidence to suggest that CLIL fosters the development of students’ oral skills, the comparison of the results from the oral tasks with the results from other types of tests which assess students’ receptive skills point out the imbalance between productive and receptive skills, which according to Cummins (1994), is one of the lessons to be learnt from research on immersion programmes in Canada.

7. CONCLUSION

The main objective of this study was to investigate the effects of a 3-year CLIL programme (105 hours in total) on the oral performance of students in grades 5 and 6 of primary education. The research project responded to the need to fill the gap in literature on the relationship between CLIL instruction/exposure and the development of students' oral skills in primary education in Spain.

The results reported in this study seem to indicate that CLIL exposure may have a positive effect on students' oral performance, as the language they produce was generally more complex, more accurate and more fluent than that of non-CLIL learners. Nevertheless, the reduced size of the sample used in this study, the lack of control over variables like amount of exposure and teacher along with the methodological limitations observed, call for the need to carry out further research studies which use larger samples of students and overcome the limitations of this study. Furthermore, empirical evidence is also needed to confirm whether CLIL exposure may also have positive effects on aspects of oral performance such as syntactic complexity, as pointed out in this study. Finally, it would also be interesting to carry out longitudinal studies which trace the development of CAF in CLIL and EFL settings to give a thorough account of the development of students' oral performance in these two contexts and to determine the strengths and weaknesses of CLIL.

In conclusion, the encouraging results reported in this study, along with previous research conducted in Spain and Europe, need to be confirmed by means of more rigorous research which keeps amount of exposure constant between the two groups and which examines not only the final product but also the language learning process in CLIL and EFL settings in order to empirically test the efficiency of CLIL.

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Appendices

Appendix A Data Collection Instruments

A1 Interview Task

Researcher: *My name is Anna and I am going to ask you a few questions. Are you ready?*

1. What is your name?
2. How old are you?
3. Do you like this school?
4. What time did you arrive this morning?
5. When will you leave?
6. What will you do when you finish school today?
7. What do you like to do in your free time?
8. What did you do last weekend?
9. Let's talk about your family. How many brothers and sisters have you got?
10. Which language do you speak with your parents? With your mother/father?
11. Where do you live?
12. How many people live in your house?
13. How many rooms are there?
14. Tell me about your room. How many beds are there?
15. Now, would you like to ask me any questions (about me or my family...)?

A2 Narrative Task

Researcher: *Now I am going to show you a little story. Can you tell me the story? What is it about?*

If the student needs some help, ask the following questions:

1. *Where are they going here?*
2. *Why is the basket empty?*
3. *Who has eaten the food?*
4. *Yes, very good. And what are they going to do now?*



Appendix B Transcription Symbols from CHAT Conventions

a) PAUSES

SYMBOL	MEANING
#	0.5 seconds
##	greater than 0.5 seconds
0[=says nothing]	participant not answering a question

b) REPETITIONS

SYMBOL	MEANING
[/]	repetition of words
[//]	retracing with correction

c) EXPLANATIONS AND ALTERNATIVES

SYMBOL	MEANING
[“]	Quotation

d) UTTERANCE TERMINATORS

SYMBOL	MEANING
+...	uncompleted utterance
+,	continuation after interruption / self-completion
++	completion by a different speaker
+/?	Interruption of a question
<....>	overlap

e) OMITTED WORDS

SYMBOL	MEANING
00 word 00sub 00verb	Grammatically license ellipsis
0*word 0*sub 0*prep	Ungrammatical omission

f) UNINTELLIGIBLE MATERIAL

SYMBOL	MEANING
xxx	Unintelligible utterance

g) L1 USE

SYMBOL	MEANING
@s:c	Word in L1

h) COMPOUNDS

SYMBOL	MEANING
Word+word	Compounds

i) EXCLAMATION AND INTERACTIONAL MARKERS

SYMBOL	MEANING
hmm@p	Thinking, waiting
uhhuh@i	yes

Appendix C Sample of Learners' Productions

1. Grade 5 learners
- 1.1 Non-CLIL group
- 1.1.1 Interview

LEARNER 1

- 1 @Begin
- 2 @Languages: en, ca
- 3 @Participants: SUB Learner 1, INV (UB) Investigator
- 4 @Coder: Anna
- 5 *INV: ok what's your name ?
- 6 *SUB: my name's is Chris.
- 7 *INV: how old are you ?
- 8 *SUB: hmm@p eleven .
- 9 *INV: ok and what time did you arrive here this morning ?
- 10 *SUB: hmm@p 00sub 00verb 0*prep one o'clock .
- 11 *INV: a@s:c quina@s:c hora@s:c has@s:c arribat@s:c ?
- 12 *SUB: hmm@p 00sub 00verb 0*prep nine o'clock .
- 13 *INV: ok at nine o'clock and when will you leave ?
- 14 *SUB: quan@s:c marxo@s:c ?
- 15 *INV: si@s:c .
- 16 *SUB: ara@s:c ?
- 17 *INV: a@s:c la@s:c tarda@s:c .
- 18 *SUB: hmm@p five haslf past .
- 19 *INV: ok and what will you do ?
- 20 *INV: què@s:c faras@s:c quan@s:c acabis@s:c ?
- 21 *SUB: hmm@p foot+ball .
- 22 *INV: ok and what do you like to do in your free time ?
- 23 *INV: què@s:c t'agrada@s:c fer@s:c al@s:c teu@s:c temps@s:c lliure@s:c ?
- 24 *SUB: hmm@p deures@s:c ["] com@s:c es@s:c diu@s:c ? .
- 25 *INV: homework ["] .
- 26 *SUB: homeworkl ["] i@s:c [//] and foot+ball .
- 27 *INV: very well .
- 28 *INV: ok last week+end el@s:c cap@s:c de@s:c setmana@s:c passat@s:c
- 29 què@s:c vas@s:c fer@s:c ?
- 30 *SUB: hmm@p foot+ball and basket+ball .
- 31 *INV: ok let's talk about your family .
- 32 *INV: how many brothers and sisters have you got ?
- 33 *SUB: no .
- 34 *INV: no brothers or sisters .
- 35 *INV: and where do you live ?
- 36 *INV: on@s:c vius@s:c ?
- 37 *SUB: a@s:c on [//] in Manresa .
- 38 *SUB: yes .
- 39 *INV: ok now you ask me questions now .
- 40 *INV: fes-me@s:c preguntes@s:c .
- 41 *SUB: how are you ?
- 42 *INV: I'm twenty three years old ..

43 *SUB: hmm@p what's your name ?
44 *INV: my name's Júlia .
45 *INV: ok .
46 @End

1.1.2 Narrative

LEARNER 2

1 @Begin
2 @Languages: en, ca
3 @Participants: SUB Learner 2 Subject, INV (UB) Investigator
4 @Coder: Anna
5 *SUB: is it a [/] # a # sister i@s:c a brother .
6 *INV: yes .
7 *SUB: is # it # hmm@p van@s:c a@s:c comprar@s:c .
8 *INV: ok what happens here ?
9 *INV: és@s:c un@s:c mapa@s:c això@s:c .
10 *SUB: map .
11 *INV: uhhuh@i .
12 *SUB: is a brother i@s:c sister is it a xxx mountain .
13 *INV: uhhuh@i .
14 *INV: and who has eaten the food ?
15 *INV: qui@s:c s'ha@s:c menjat@s:c el@s:c menjar@s:c ?
16 *SUB: el@s:c dog .
17 *INV: the dog .
18 *INV: ok very good .
19 @End

1.2 CLIL group

1.2.1 Interview

LEARNER 3

1 @Begin
2 @Languages: en,ca
3 @Participants: SUB Learner 3, INV Anna Investigator
4 @Coder: Anna
5 *INV: what is your name ?
6 *SUB: Caroline.
7 *INV: how old are you ?
8 *SUB: I'm eleven years old .
9 *INV: and do you like this school ?
10 *SUB: yes I like .
11 *INV: what time did you arrive this morning ?
12 *INV: what time did you arrive this morning ?
13 *SUB: a@s:c quina@s:c hora@s:c arribo@s:c ?
14 *INV: uhhuh@i .

15 *SUB: at the quarter past nine .
16 *INV: ok and what time do you go home ?
17 *SUB: al@s:c migdia@s:c o@s:c a@s:c la@s:c tarda@s:c ?
18 *INV: in the afternoon .
19 *SUB: at five no [//] at half past five .
20 *INV: and what do you do when you finish school today?
21 *SUB: I go to the music .
22 *INV: ok and what do you like to do in your free time ?
23 *SUB: què@s:c faig@s:c al@s:c meu@s:c temps@s:c lliure@s:c ?
24 *INV: yes .
25 *SUB: xxx I study .
26 *INV: and what else do you do?
27 *SUB: I playing to computer games .
28 *INV: what did you do last weekend ?
29 *SUB: ## I go to the Manresa .
30 *INV: ok let's talk about your family .
31 *INV: how many brothers and sisters have you got ?
32 *SUB: one sister .
33 *INV: uhuh@i and which language do you speak with your parents ?
34 *SUB: French .
35 *INV: with your father and mother ?
36 *SUB: yes .
37 *INV: good .
38 *INV: and where do you live ?
39 *SUB: in Sant@s:c Fruitós@s:c .
40 *INV: how many people live in your house ?
41 *SUB: four persons .
42 *INV: uhuh@i and how many rooms are there in your house ?
43 *SUB: ## eight .
44 *SUB: eight .
45 *INV: tell me about your bedroom .
46 *SUB: in my bedroom there are two bed one for me and one for my sister
47 *SUB: and there's a table for I study
48 *SUB: there is a door and there are a blackboard .
49 *INV: ok .
50 *INV: ok now would you like to ask me any questions ?
51 *SUB: no@s:c ho@s:c entenc@s:c ?
52 *INV: vols@s:c fer-me@s:c alguna@s:c pregunta@s:c about me
53 or my family ?
54 *SUB: yes .
55 *INV: ok go ahead .
56 *SUB: do you have a sister or a brother ?
57 *INV: yes i have one brother .
58 *SUB: how you many persons habit@s:c in your house ?
59 *INV: two .
60 *SUB: how many bedroom there is [//] are in your house ?
61 *INV: two .
62 *INV: ok .
63 @End

1.2.2 Narrative

LEARNER 4

1 @Begin
2 @Languages: en, ca
3 @Participants: SUB Learner 4 Subject, INV Anna Investigator
4 @Coder: Anna
5 *INV: Can you tell me what the story is about?
6 *SUB: hmm@p ## the two brothers ## preparan@s:c [""] +...
7 *INV: prepare [""]
8 *SUB: +, prepare ## com@s:c es@s:c diu@s:c picnic@s:c [""]?
9 *INV: picnic [""]
10 *SUB: hmm@ the dog ##
11 *INV: this is a basket .
12 *SUB: una@s:c cistella@s:c ?
13 *INV: uhhuh@i
14 *SUB: xxx into the basket ## posant@s:c [""]
15 *INV: they're putting [""]
16 *SUB: the putting a sandwich and xxx per@ untar@s:c jam and xxx
17 *SUB: mantega@s:c [""] com@s:c es@s:c deia@s:c ?
18 *INV: butter [""]
19 *SUB: butter .
20 *INV: ok and the dog ?
21 *INV: what is the dog doing ?
22 *SUB: dog look sandwich per@s:c eat [/] eat.
23 *INV: and where are they going ?
24 *INV: on van ?
25 *SUB: ## I go the mountain ## a@s:c fer@s:c picnic and xxx
26 *SUB: the dog ## [/] dog exit the ## [/] the basket
27 *INV: why is the basket empty ?
28 *INV: per@s:c què@s:c està@s:c buit@s:c?
29 *SUB: the dog eat the xxx [/] ## the food.
30 *INV: the food ok.
31 @End

2. Grade 6 learners

2.1 Non-CLIL group

2.1.1 Interview

LEARNER 5

1 @Begin
2 @Languages: en, ca
3 @Participants: SUB Learner 5 Subject, INV Júlia Investigator
4 @Coder: Anna
5 @Begin

6 *INV: ok what's your name ?
7 *SUB: my name is James.
8 *INV: ok how old are you Oriol ?
9 *INV: quants@s:c anys@s:c tens@s:c .
10 *SUB: hmm@p 00sub 00verb eleven years old .
11 *INV: do you like the school ?
12 *SUB: it's Sant@s:c Fruitós@s:c de@s:c Bages@s:c .
13 *INV: but t'agrada@s:c l'escola@s:c ?
14 *SUB: yes .
15 *INV: what time did you arrive here this morning ?
16 *SUB: 00sub 00verb 0*prep the nine o'clock .
17 *INV: ok very good and when will you leave ?
18 *SUB: al@s:c matí@s:c o@s:c a@s:c la@s:c tarda@s:c ?
19 *INV: a@s:c la@s:c tarda@s:c .
20 *SUB: 00sub 00verb 0*prep the half past six [//]five .
21 *INV: and at half past five what will you do ?
22 *INV: què@s:c faràs@s:c?
23 *SUB: hmm@p it's music .
24 *INV: ok music .
25 *INV: what do you like to do in your free time?
26 *INV: al@s:c teu@s:c temps@s:c lliure@s:c què@s:c t'agrada@s:c fer@s:c ?
27 *SUB: hmm@p 00sub 0*verb basketball hmm@p the play the guitar
28 *INV: I play the guitar too .
29 *SUB: i@s:c ja@s:c està@s:c .
30 *INV: ok and last week+end +...
31 *INV: cap@s:c de@s:c setmana@s:c passat@s:c .
32 *INV: what did you do ?
33 *INV: què@s:c vas@s:c fer@s:c ?
34 *SUB: 0*sub 0*verb in the Montserrat@s:c
35 *INV: now let's talk about your family .
36 *INV: how many brothers and sisters have you got ?
37 *SUB: in the Oscar@s:c in the +...
38 *INV: quants@s:c tens@s:c de@s:c germans@s:c ?
39 *SUB: ah 00sub 00verb the two .
40 *INV: and which language do you speak with your family ?
41 *INV: Spanish or Catalan ?
42 *SUB: Catalan .
43 *INV: ok and where do you live ?
44 *SUB: hmm@p yes .
45 *INV: I live in Barcelona and you?
46 *SUB: 00sub 00verb 0*prep Manresa@s:c .
47 *INV: ok now you ask me questions .
48 *INV: fes-me@s:c preguntes@s:c .
49 *SUB: hmm@p what's your name ?
50 *INV: my name is Julià@s:c .
51 *SUB: hmm@p 0*verb in the favourite subjects ?
52 *INV: I don't study now .
53 *INV: ara@s:c no@s:c estudio@s:c
54 *SUB: doncs@s:c què@s:c t'agradava@s:c ?
55 *INV: English .

56 *SUB: in the brothers ?
57 *INV: I have five sisters and one brother .
58 *INV: ok .
59 @End
60

2.1.2 Narrative

LEARNER 6

1 @Begin
2 @Languages: en, ca
3 @Participants: SUB Learner 6 Subject, INV Júlia Investigator
4 @Coder: Anna
5 *SUB: hmm@p picnic .
6 *INV: uhhuh@i .
7 *SUB: dog 0*verb in the +...
8 *INV: ++ basket [""] .
9 *SUB: in the basket quan@s:c [/] quan@s:c <in the three> [//] bueno@s the
10 three in a map .
11 *SUB: hmm@p # hmm@p uff@i to exit .
12 *INV: uhhuh@i .
13 *INV: and they go where ?
14 *INV: on@s:c van@s:c ?
15 *SUB: <in the mountain> [/] in the mountain 0*det dog surt@s:c .
16 *INV: <goes out from the> [""] +..?
17 *SUB: ++ basket .
18 *INV: uhhuh@i .
19 *INV: and where is the food ?
20 *SUB: in the dog .
21 *INV: ok very good .
22 @End

2.2 CLIL group

2.2.1 Interview

LEARNER 7

1 @Begin
2 @Languages: en, ca
3 @Participants: SUB Learner 7 Subject, INV Anna Investigator
4 @Coder: Anna
5 *INV: what is your name ?
6 *SUB: my name is Caroline.
7 *INV: how old are you ?
8 *SUB: I am twelve .
9 *INV: and do you like this school ?
10 *SUB: yes .
11 *INV: what time did you arrive this morning ?

12 *SUB: 0 [= says nothing] .
13 *INV: what time did you arrive this morning ?
14 *SUB: que@s:c quin@s:c temps@s:c +/?
15 *INV: no .
16 *INV: what time [""] +/?
17 *SUB: quina@s:c hora@s:c ["] .
18 *INV: +, did you arrive this morning ?
19 *SUB: hmm@p no@s:c sé@s:c hmm@p 00sub 00v 0*prep
20 a quarter [/] a quarter hmm@p quarter to [/] to nine .
21 *INV: when will you leave school ?
22 *SUB: 0 [= says nothing] .
23 *INV: what time will you leave school ?
24 *SUB: ah 00sub 00v 0*prep half past hmm@p [/] half past five .
25 *INV: what will you do when you finish school today ?
26 *SUB: hmm@p xxx .
27 *INV: nothing ?
28 *SUB: hmmp@p .
29 *INV: what do you +...
30 *SUB: <homeworks> .
31 *INV: homework ok .
32 *INV: what do you like to do in your free time ?
33 *SUB: hmm@p play volley+ball .
34 *INV: what did you do last week+end ?
35 *SUB: hmm@p xxx .
36 *INV: what did you do ?
37 *SUB: el@s:c dijous@s:c de@s:c la@s:c setmana@s:c passada@s:c ?
38 *INV: last week+end .
39 *INV: Saturaday and Sunday .
40 *SUB: ah .
41 *INV: what did you do ?
42 *SUB: hmm@p xxx in Saturday I go with my grandparents ##
43 and play volley+ball and [/] ## and *0 prep
44 Sunday homeworks and ja@s:c està@s:c .
45 *INV: now let's talk about your family .
46 *INV: how many brothers and sisters have you got ?
47 *SUB: I have one brother .
48 *INV: which language do you speak with your parents ?
49 *SUB: catalan .
50 *INV: where do you live ?
51 *SUB: with my +...
52 *INV: where ?
53 *SUB: ah where on@s:c ?
54 *SUB: in Pineda@s:c .
55 *INV: how many people live in your house ?
56 *SUB: four .
57 *INV: how many rooms are there ?
58 *SUB: hmm@p .
59 *INV: more or less .
60 *INV: approximately .
61 *SUB: rooms de@s:c dormir@s:c .

62 *INV: ok bedrooms yes .
 63 *INV: how many bedrooms are there?
 64 *SUB: three .
 65 *INV: Tell me about your bedroom .
 66 *INV: Describe your bedroom .
 67 *SUB: hmm@p 0*sub is no very small but hmm@p xxx .
 68 *INV: what have you got in your bedroom ?
 69 *SUB: a bed .
 70 *INV: a bed .
 71 *SUB: com@s:c es@s:c deia@s:c estanteria@s:c shel [///] shul [""]?
 72 *SUB: com@s:c es@s:c deia@s:c ?
 73 *INV: shelf ["] .
 74 *SUB: a shelf, a table, a chair, a piano .
 75 *INV: ok .
 76 *SUB: hmm@p no@s:c sé@s:c ja@s:c està@s:c .
 77 *INV: ok would you like to ask me any questions ?
 78 *INV: about me or my family ?
 79 *SUB: what is your name ?
 80 *INV: my name's Anna .
 81 *SUB: hmm@p what is the name of your mother ?
 82 *INV: my mother's name is Maria .
 83 *SUB: and your father's name ?
 84 *INV: my father's name is Toni .
 85 *SUB: have you got any brothers ?
 86 *INV: yes I've got one brother .
 87 *SUB: and sisters ?
 88 *INV: no I haven't got any sisters .
 89 *SUB: how old are you ?
 90 *INV: I'm twenty+five .
 91 *SUB: hmm@p +...
 92 *INV: that's it ?
 93 *SUB: yes .
 94 *INV: ok .
 95 @End

2.2.2. Narrative

LEARNER 8

1 @Begin
 2 @Languages: en,ca
 3 @Participants: SUB Learner 8 Subject, INV Anna Investigator
 4 @Coder: Anna
 5 @Begin
 6 *INV: right this is the story .
 7 *INV: now can you tell me what this story is about ?
 8 *SUB: hmm@p the children prepare the food for the [/] for the lunch ## and
 9 0*det mother prepare the tea for the children and the dog is
 10 surprise .

11 *SUB: the mother explains 0*prep the [/] the children and the dog is
12 in the [/] the basket .
13 *SUB: the children # say good+bye for
14 the mother ## and the children hmm@p [/] the children is ##
15 [//] walk for the mountains and # they see the cows and the
16 forest the sun .
17 *SUB: the children is surprise for the dog is
18 [/] is eat for the food in the basket +...
19 *SUB: +, ## and the children 0*verb surprise
20 *SUB: the dog is happy and the food is disappeared.
21 *INV: very good .
22 @End