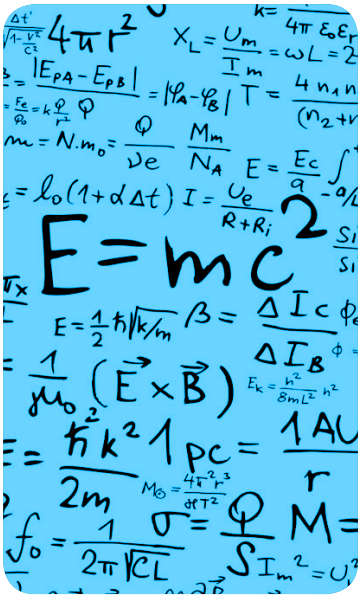

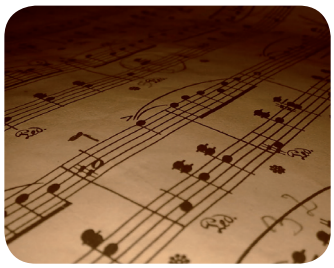

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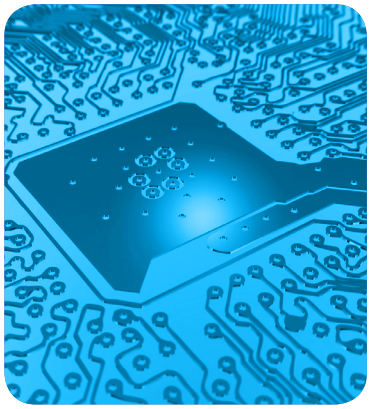

Higher-Order Thinking Skills in Bilingual Section and Bilingual Program Students. A Matter of Cognitive Maturity or Type of Program?

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ABSTRACT

This research focuses on the higher-order thinking cognitive processes students apply while carrying out a reading comprehension test in English. The study aims at identifying whether students in high-immersion (bilingual section) and low-immersion (bilingual program) bilingual programs apply different cognitive skills when doing a reading comprehension test. For the purpose of the analysis, 1st year of bachillerato bilingual section and bilingual program students, and 3rd year of ESO bilingual section ones were tested. A Cambridge IGCSE exam reading component and a questionnaire were provided to the students in the study. By analysing the data collected, it has been proved that bilingual section students from 1st year of bachillerato tend to apply more HOTS than 1st year of bachillerato bilingual program and 3rd year of ESO bilingual section students. Moreover, it seems that their HOTS enhancement is related to both their cognitive maturity because of their age and to the amount and/or quality of exposure to the target language due to their content and language integrated learning lessons. It needs to be mentioned that the main objective of this paper is not only to discuss on the cognitive processes students seem to have more capacity to apply but also, on the pedagogical implications of these findings as it is essential for teachers to become aware of the cognitive skills their students are expected to apply in order to fulfill a reading comprehension task in English.

RESUMEN

Esta investigación centra su estudio en las habilidades del pensamiento que requieren procesos cognitivos más complejos que se aplican al llevar a cabo una comprensión lectora en inglés. Su principal objetivo es identificar si los estudiantes que han estado inmersos en sección bilingüe y aquellos que pertenecen a programa bilingüe aplican diferentes habilidades cognitivas cuando realizan un test en compresión lectora. Con esta finalidad, se les entregó a los participantes una lectura y un cuestionario y se realizó una comparación entre estudiantes de 1º de bachillerato de sección y programa bilingüe, y alumnos de 3º de ESO bilingüe. Después de analizar los resultados, se ha considerado que los estudiantes de 1º de bachillerato sección bilingüe tienen más capacidades para aplicar las habilidades del

pensamiento que requieren procesos cognitivos más complejos en comparación con sus compañeros de 1º de bachillerato del programa bilingüe y los alumnos de 3º de ESO sección bilingüe. A su vez, también se podría deducir de los resultados obtenidos que el desarrollo de estas habilidades está relacionado tanto con su desarrollo madurativo como con la cantidad de exposición a la lengua inglesa y/o la calidad de la misma debido a su educación bilingüe. Cabe destacar que el objetivo principal de este trabajo no es solamente el de analizar las habilidades del pensamiento de los alumnos, sino también el de tener en cuenta sus implicaciones pedagógicas ya que es esencial que el profesor sea consciente en todo momento de las habilidades cognitivas que están desarrollando sus alumnos cuando realizan una tarea de comprensión lectora en inglés.

INTRODUCTION

As it was once said by Roger Lewin, *Too often we give children the answers to remember rather than problems to solve*. By having this quotation in mind, this paper deals with the different cognitive processes applied by bilingual section and bilingual program students when carrying out a task by themselves, concretely a reading comprehension test.

The aim of this study is to investigate the HOTS (higher-order thinking skills) (Anderson, 2001) that bilingual section secondary school students, and bilingual section and bilingual program bachillerato students apply when taking the reading component of an IGCSE exam. 1st year of bachillerto bilingual section students and 3rd year of ESO bilingual section ones have been involved in CLIL pedagogy since primary education. In contrast, 1st year of bachillerato bilingual program students are taught content subjects in Spanish except for the English subject. Nevertheless, it was during secondary education that they were taught one content subject in the target language. In addition, bachillerato students from both bilingual section and bilingual program have the possibility to enroll an optative subject called Ampliación de Inglés. Therefore, this study will focus on the following research questions:

- Which of the three groups show more capacities to apply higher-order thinking skills in the same reading comprehension test?

- Are the results obtained in the reading comprehension test related to the type and quantity of exposure to English (bilingual program where English is taught as a subject in bachillerato and only one content subject is taught in English during secondary school, and bilingual section where English is also a medium of instruction to teach other subjects)?
- Are those results more related to age or cognitive maturity of the students?
- Is there any correlation between the student's second term marks at secondary school and the ones obtained in the reading comprehension test concerning their performance in HOTS?

By taking these research questions into account, my **first hypothesis** is that the group which will illustrate more capacities to apply their higher-order thinking skills when doing a reading comprehension test will be 1st year of bachillerato from the bilingual section, followed by those in 3rd year of ESO bilingual section, who will score better than their older peers in 1st year of bachillerato bilingual program. The rationale behind this hypothesis is the quantity and quality of target language bilingual section students have been exposed to since primary education due to their involvement in CLIL education. In other words, my hypothesis is that the results obtained in the reading comprehension test will be less affected by the cognitive maturity of the students and more by the quantity and quality of exposure to the target language. The **second hypothesis** is that 1st year of bachillerato bilingual section students enrolled in Ampliación de Inglés will score the highest marks in the reading comprehension test. In addition, the **third hypothesis** is that the best marks in the reading comprehension test will be achieved by the students who got the highest second term marks in the English subject.

THEORETICAL FRAMEWORK

Taking into consideration the aim of the study, a theoretical framework concerning content and language integrated learning (CLIL), cognitive skills and reading comprehension will be provided.

Content and language integrated learning

As some of the students taking part in the study are taught some content subjects in their second language, a wide CLIL background will be portrayed. To begin with, it needs to be reminded that the acronym CLIL stands for *Content and Language Integrated Learning* and it started to be developed in Europe (Llinares, Morton & Whittaker, 2012), where the European Commision's White Paper (1995) aimed at developing the '1+2 policy' whose main objective was for Europeans to be competent in two Community foreign languages apart from their mother tongue. The high popularity of CLIL in Europe can be related to the fact that it does not only create multilingual and multicultural European citizens, but it also heightens foreign language learning opportunities which will assure European citizens' future perspectives in a globalised world context (Dalton-Puffer, 2008).

As it is claimed by Llinares, Morton and Whittaker (2012), although this methodology has been widely spread around Europe, there are certain CLIL issues which have not always been clarified sufficiently such as 'how language is involved in doing CLIL, what aspects of language should be targeted, how learner's language develop through CLIL, and whether and how language should be assessed along with the content' (p.8). Therefore, it has been stated by Leung (2005) that in order to research on CLIL, the two dimensions, that is to say 'language and content', need to be brought together:

'[c]curriculum content learning and language learning, which are still generally seen as a two separate pedagogic issues, should be consciously taken into account in an integrated way in classroom-based bilingual research'.

(Leung, 2005: 240)

In addition, Do Coyle's (2010) framework of language use in CLIL also needs to be illustrated: the language *of* learning, language *for* learning and language *through* learning. With regards to the former, it refers to the language that is needed for students to express content and skills related to the subject. Language *for* learning concerns the language that the learner needs to participate in tasks and activities such as pair group, cooperative group work or debating. In relation to the latter, it is understood as the language used for socializing involving both language and thinking. Apart from this, it was in 1999 when Do Coyle developed the 4Cs framework which emphasized the interrelationship between content (subject matter), communication (language), cognition (learning and thinking) and culture (social awareness of self and 'otherness'). As she points out in *The International Journal of Bilingual Education and Bilingualism* (2007):

> In essence, the 4Cs Framework suggests that it is through progression in knowledge, skills and understanding of the content, engagement in associated cognitive processing, interaction in the communicative context, the development of appropriate language and skills as well as experiencing a deepening intercultural awareness that effective CLIL takes place.
>
> (Coyle, 2007: 550)

Taking these 4Cs in mind, the most majority of CLIL studies focus on language (communication) and most recently on the integration of communication and content; nevertheless, the C concerning cognition has not been deeply studied yet (Dalton-Puffer, 2013).

Continuing with CLIL, a theoretical background where this methodology is framed will be provided. As CLIL integrates language use and language for constructing knowledge, theories where language is considered to be an abstract system without context will not be accepted (LLinares, Morton & Whittaker, 2012). Due to this reason, the theoretical perspectives which are enclosed in CLIL pedagogy are the following: Halliday's systemic functional linguistics (SFL) and Vygotsky's sociocultural theory. Starting with the former, SFL is considered to be a theory where the learners' choices from both the lexical and grammatical systems of a language are moduled by the social activity where they are involved, in this specific case, education (Llinares, Morton & Whittaker, 2012). According to Halliday (2004), in order to have that language choice decision made, three metafunctions of language can be labelled:

the ideational metafunction, through which our experience can be constructed; the interpersonal metafunction, through which we take part in social relationships; and the textual metafunction, which enables us to build discourse sequences which flow, are cohesive and have continuity.

Moving on to the sociocultural theory of learning, it was developed by Vygotsky in 1978. As he explains in his *Mind in Society: The Development of Higher Psychological Processes*, language and learning are thought to be social processes and it is the language used with more competent others the essential mediating tool to develop cognitive skills. Related to this, moreover, scaffolding needs to be brought up since it is a central concept in sociocultural perspectives. The strategies used to scaffold concern how more expert others intervene so as to facilitate the learners fulfill their learning goals. In addition, scaffolding in a classroom can be carried out in two directions: by paying attention to the teacher-student interaction and spoken interventions to support learning; and on the other hand, by sequencing the kind of texts that learners will tackle (*genre*) and the language that they will need (*register*) (Llinares, Morton & Whittaker, 2012: 12). Apart from scaffolding, assessment in CLIL needs to be socioculturally approached as well. As pointed out by Llinares et al. (2012: 12), not only can CLIL students get feedback from their teacher in order to make some adjustments possible within the learning or teaching process (assessment *for* learning), but also can they move towards more complex contents and learning goals by the teacher's focus on their own learning processes (dynamic assessment). In addition to this, by taking systemic functional linguistic and sociocultural theories into account, the term *dialogic inquiry* was coined by Haneda and Wells (2008), which emphasised the great importance of the teachers-learners dialogues to construct content knowledge.

An overview of the main secondary education CLIL/bilingual programs which have taken place in the Madrid Autonomous Community will be illustrated. The bilingual program that is being implemented at the moment is named CAM and was launched by the Comunidad de Madrid in primary education in 2004, not reaching the first year of secondary education until 2010-11. The first CLIL/bilingual program was launched by an agreement between the Ministry of Education and The British Council in 1996. As happened with the CAM, this project was first implemented in primary education so that it was not until 2004 that this project reached secondary education (Llinares & Dafouz, 2010). Besides, at the end of the

four years of secondary compulsory education, students were asked to sit an external official test named IGCSE (International General Certificate of Secondary Education). In fact, this certificate equated to the General Certificate in the United Kingdom which portrays the English proficiency requirements for students to enter universities in UK and some other Anglophone countries (Llinares & Dafouz, 2010).

Cognitive Skills

Since this study deals with the cognitive skills students apply when doing a reading comprehension test, this section will tackle some different cognitive approaches developed by Leung (1996), Coyle (2007), Dalton-Puffer (2013), Bloom (1956) and his collaborators Anderson and Krathwohl (2001). Nevertheless, it is Bloom's Taxonomy and Anderson and Krathwohl's revised one, the cognitive models this study focuses on.

It was Leung in 1996 the one who affirmed that 'language use is related to thinking processes in a non-arbitrary way [...] the meanings embedded in the knowledge structures are expressed, to a great extent, through identifiable language forms' (Leung, 1996: 34). Continuing with Do Coyle (2007), she also referred to cognition when explaining her 4c's framework. She pointed out that in order to acquire subject knowledge, skills and understanding, different cognitive processes need to take place inside the learner; concretely, these acquisition processes require learning and thinking. In order to construct subject knowledge, skills and understanding, an analysis of the linguistic demand required by that cognitive process needs to be taken into consideration.

A few years later, Dalton-Puffer (2013) proposed a construct of cognitive discourse functions (CDFs) which is based on Halliday's Systemic Functional Linguistics. They might function as a zone of convergence between subject specific cognitive learning goals and the linguistic representations students are exposed to in classroom by interacting verbally; in other words, they relate language and thought. CDFs are considered to be observable thought processes analogs, which aims at recognising how disciplinary thought processes take place in classroom interaction. As Dalton-puffer claimed:

A cognitive discourse function is a kind of demonstration, showing the students how rational/deliberate thought works and rehearsing them into it. CDFs thus are a tangible analog of thought processes and "unlike cognition [CDFs], are visible, traceable and documentable in the observation of a classroom discourse".

(Dalton-Puffer, 2013: 231-2)

In order to understand how cognition is verbalised in classroom talk, Dalton-Puffer illustrated seven labels: *Classify* (I tell you how we can cut up the world according to certain ideas), *Define* (I tell you about the extension of this object of specialist knowledge), *Describe* (I tell you details of what can be seen), *Evaluate* (I tell you what my position is vis a vis X), *Explain* (I give you reasons for and tell you cause/s of X), *Explore* (I tell you something that is potential), and *Report* (I tell you something external to our immediate context on which I have a legitimate knowledge claim) (Dalton-Puffer, 2013). The reason why this study does not focus on this model is that although it is directly related to CLIL, the linguistic expressions in each of the seven functions have not been deeply developed yet.

Now, the taxonomy this study mainly focuses on will be presented. This taxonomy was designed for educational objective purposes and it was published by Benjamin Bloom and his colleagues at the American Psychological Association in 1956 (Munzenmaier, 2013: 3-5). This taxonomy is framed in their book *Taxonomy of Educational Objectives* also called *The Handbook* and although originally Bloom's intention was to include the three domains: cognitive-knowledge-based domain, affective-attitude-based domain and psychomotor-physical skills-based domain; only the cognitive-knowledge-based domain was developed in *The Handbook.* The affective-attitude-based domain was developed by David Krathwohl in 1964 in *Handbook II: Affective Domain*; unfortunately, *Handbook III* concerning psychomotor-physical skills-based domain was not published, although some authors such as Simpson and Harrow have addressed taxonomies related to this domain. (Munzenmaier, 2013)

It should be asserted that it is the cognitive-knowledge-based domain the one which will be developed in detail since this study focuses on the cognitive processes students apply when doing a reading comprehension test. Bloom's original taxonomy consists of six hierarchically organized levels. At the base of the pyramid skills such as *knowledge* and *comprehension*

which belong to the lower-order thinking skills group (LOTS) can be found; whereas *evaluation* and *synthesis* termed higher-order thinking skills (HOTS) are placed at the top of the taxonomy. Before continuing with the six levels of the pyramid description, it needs to be stated that each ascending level of the taxonomy depends on the one placed below it, so that in order to get to the higher skills, the lower ones must have been previously developed. The following table provides a definition for each of the six cognitive levels proposed by Bloom and also, their learning objectives (Munzenmaier, 2013: 6-11).

BLOOM'S TAXONOMY (Bloom, 1956)		
COGNITIVE PROCESS		**DEFINITION AND LEARNING OBJECTIVES**
H O T S	**EVALUATION LEVEL**	It concerns learners' ability to make judgments: appraising, critiquing, judging, justifying, arguing or supporting.
	SYNTHESIS LEVEL	It tackles learners' creative thinking: proposing new ideas, designing, creating or categorising.
	ANALYSIS LEVEL	It requires the learner's ability to identify relationships among parts: differentiating, comparing, contrasting, criticising or experimenting.
L O T S	**APPLICATION LEVEL**	It refers to the learner's ability to solve a new problem by applying some pieces of information that have not been prompted: predicting, preparing, operating or interpreting.
	COMPREHENSION LEVEL	It deals with new information processing: summarising, defending, paraphrasing or giving examples
	KNOWLEDGE LEVEL	It concerns remembering and retrieving materials previously learnt: listing, naming, labeling or repeating

Table 1. Bloom's taxonomy: cognitive processes, definitions and learning objectives. (Bloom, 1956)

Nevertheless, this taxonomy was revised by Anderson and Krathwohl (2001), who were Bloom's collaborators. According to them, it was necessary for this taxonomy to be revised due to the fact that more about children's learning development and how teachers plan and assess their students is known nowadays in comparison to when the original taxonomy was designed (Anderson & Krathwohl, 2001: xxiii). First of all, Anderson and Krathwhl suggested 'a statement of an objective contains a verb and a noun. The verb generally describes the intended cognitive process. The noun generally describes the knowledge students are

expected to acquire or construct' (pp. 4-5). Therefore, they claimed that in contrast to the original taxonomy, the one revised is two-dimensional; the cognitive process dimension and the knowledge dimension. With regards to the cognitive dimension, it contains six levels: *remember, understand, apply, analyse*, *evaluate* and *create*. Table 2 below illustrates the six aforesaid dimensions developed by Anderson and Krathwohl in their revised taxonomy (2001).

REVISED TAXONOMY (ANDERSON & KRATHWOHL, 2001)		
H O T S	**CREATE**	Definition: Put elements together to form a coherent or functional whole; reorganise elements into a new pattern or structure.
		Cognitive processes: • *Generating*: Coming up with alternative hypotheses based on criteria. • *Planning*: Devising a procedure for accomplishing some task. • *Producing*: Inventing a product.
	EVALUATE	Definition: Make judgments based on criteria and standards.
		Cognitive processes: • *Checking*: Detecting inconsistencies or fallacies within a process or product; determining whether a process or product has internal consistency: detecting the effectiveness of a procedure as it is being implemented. • *Critiquing*: Detecting inconsistencies between a product and external criteria, determining whether a product has external consistency; detecting the appropriateness of a procedure for a given problem.
	ANALYSE	Definition: Break materials into its constituent parts and determine how the parts relate to one another and to an overall structure or purpose.
		Cognitive processes: • *Differentiating*: Distinguishing relevant from irrelevant parts or important from unimportant parts of presented material. • *Organising*: Determining how elements fit or function within a structure. • *Attributing*: Determine a point of view, bias, values, or intent underlying presented material.
	APPLY	Definition: Carry out or use procedure in a given situation.
		Cognitive processes: • *Executing*: Applying a procedure to a familiar task.

L		• *Implementing*: Applying a procedure to an unfamiliar task.
O **T** **S**	**UNDERSTAND**	Definition: Construct meaning from instructional messages, including oral, written, and graphic communication.
		Cognitive processes: • *Interpreting*: Changing from one form of representation to another. • *Exemplifying*: Finding specific example or illustration of a concept or principle. • *Classifying*: Determining that something belongs to a category. • *Summarising*: Abstracting a general theme or major point(s). • *Inferring*: Drawing a logical conclusion from presented information. • *Comparing*: Detecting correspondences between two ideas, objects, and the like. • *Explaining*: Constructing a cause-effect model of a system.
	REMEMBER	Definition: Retrieve relevant knowledge from long-term memory.
		Cognitive processes: • *Recognising*: Locating knowledge in long-term memory that is consistent with presented material. • *Recalling*: Retrieving relevant knowledge from long-term memory.

Table 2. Revised taxonomy: categories, definitions and cognitive processes. (Anderson & Krathwohl, 2001)

Following on, the knowledge dimension will be examined as well. This dimension is divided in four different types of knowledge: *Factual knowledge*, *Conceptual knowledge, Procedural knowledge* and *Metacognitive knowledge*. Concerning *Factual knowledge*, it involves students to know the basic elements in order to be acquainted with the discipline, understand it and systematically organise it. In addition, two subtypes of Factual knowledge can be distinguished: *knowledge of terminology* and *knowledge of specific details and elements.* With regards to *Conceptual knowledge*, it refers to the 'knowledge of categories and classifications and the relationships among them [by means of] schemas, mental models, or implicit or explicit theories in different cognitive psychological models'. Furthermore, three subtypes of *Conceptual knowledge* can be differentiated: *knowledge of*

classification and categories, *knowledge of principles and generalization,* and *knowledge of theories, models, and structures.* Regarding *Procedural knowledge* it relates to 'how to do something, methods of inquiry and criteria for using skills, algorithms, techniques, and methods'. Besides, three diverse subtypes of *Procedural knowledge* can be distinguished: *knowledge of subject-specific skills and algorithms, knowledge of subject-specific techniques and methods,* and finally, *knowledge of criteria for determining when to use appropriate procedures.* To conclude, *Metacognitive knowledge* which deals with 'knowledge of cognition in general as well as awareness and knowledge of one's own cognition' and can be divided in three subtypes: *strategic knowledge, knowledge about cognitive tasks, including appropriate contextual and conditional knowledge,* and *self-knowledge* (Anderson & Krathwohl, 2001: 45-60).

To conclude, some researchers such as Cummins (2000) proposed that when learning a language, children create some sets of skills and metalinguistic knowledge which can be transferred to another language; that is to say, those cognitive processes taking place in their L1 can be drawn upon when using their L2 and vice versa. This was called Common Underlying Proficiency (CUP); approach which could illustrate the reason why it is easier for learners to acquire additional languages.

Reading comprehension

Lots of different definitions with regards to the verb *to read* have been proposed through history, for instance: 'to receive or take in the sense of (as letters or symbols) by scanning', 'to understand the meaning of (written or printed matter)', and 'to attribute a meaning or interpretation to (something read)' (Bernhardt, 1991: 5). According to some research, the process of reading falls under two perspectives: reading as a cognitive process (meaning-extracting) or reading as a social process (meaning-constructing). Concerning the former, reading is understood as carrying out a problem-solving activity where the material which needs to be understood and the process for understanding take place inside the brain. Nevertheless, the most criticised element from this perspective is the fact of being an individual act, that is to say, each reader process certain steps which are rule-governed so that the final output would be the same (p. 8). As regards reading as a social process, it is

considered as a way to establish and maintain social relations among people and also, as a way to explain how different cultural backgrounds will portray a different reading of a text (pp. 9-10). In sum, the perspective which is going to be supported by this study will be the cognitive one since this paper aims at illustrating the higher-order thinking skills which students apply when reading.

Following on, some important facets which concern the design of the reading comprehension test which was implemented will be provided. It was Fillmore and Kay (1983) the ones who proposed a set of guidelines in order to formulate questions appropriately in a reading comprehension test. The ones followed for the design of the reading test implemented were the following:

- Questions should not contain harder vocabulary than the text.
- Questions should have only one unequivocal answer.
- If the candidate understands the text they should be able to answer the question.
- Rejection of alternatives on grammatical grounds should not be allowed.

Apart from this, the order in which questions are presented in the answer sheet needs to match the order in which information appears in the reading text. As Urquhart and Weir (1998: 154) pointed out, 'readers construct referential representation of a text incrementally. The sequential ordering of questions [...] will help candidates mirror this cumulative processes'. Urquhart and Weir (1998) also explained different reading comprehension test models, in particular *short-answer questions* model, whose format can be manipulated so as to match any level of the target language and allows the testing of all the processes (including the cognitive ones) which may be needed in a reading comprehension test (p. 164). However, its main drawback is that it pushes students to be involved in writing their own answers and not using the words in the text, which in some cases could cause an additional difficulty (p. 163). Due to this reason, grammar miscues do not have to be taken into account when assessing a reading test: 'mechanical accuracy criteria should never feature in the scoring system as this affects the accuracy of the measurement of the reading construct' (Urquhart & Weir, 1998: 163).

EXPERIMENT DESIGN AND METHODOLOGY

Since the purpose of the study is to investigate on the cognitive skills 1st year of bachillerato bilingual section and bilingual program students, and 3rd year of ESO bilingual section students apply while sitting a reading comprehension test, some information related to the context where the study took place, the students' profile, the materials needed throughout the study, the study design and the research procedure followed will be presented.

This study took place in a bilingual secondary school located in Leganés (Madrid) since it was in this high school where the researcher's internship as a teacher-in-training was carried out during both the general and the specific module of the master's degree. It is called IES Isaac Albéniz and it first belonged to the MEC/British Council bilingual project, but it was in the academic year 2010/2011 when it became part of the Community of Madrid bilingual project. Although the student body is divided in bilingual section (students enrolled in bilingual education since primary school who do at least 1/3 of the curriculum in English) and bilingual program (secondary school students who do one or two subjects in English, and bachillerato students who are taught content subjects in Spanish except for the English subject), they all receive the same number of English lessons, five hours per week. Apart from this, students from bachillerato have the option of choosing an optative subject called Ampliación de Inglés whose aim is mostly to develop listening and speaking skills, that is to say, to have more exposure to the target language.

The total number of students attending this school is four hundred and forty four among which, around seven percent are immigrants coming from South America, East of Europe and North Africa. The student body is divided in twenty classrooms: four classes per course in the four years of obligatory secondary education and two classes per course of bachillerato. Moreover, the number of teachers ascends to fifty five; among them twenty are tutors from different courses. With regards to the facilities available for IES Isaac Albéniz students, some of them could be highlighted: twenty three classrooms, fifteen subject departments, one library, three Science laboratories, two computer laboratories (one is only available for the ICT subject), two audiovisual classrooms, one Music classroom, one Art classroom, two classrooms for Technology, a gym and a multi-use room.

Continuing with the students' profile, it was students from 1st year of bachillerato who belong to both the bilingual section and bilingual program, and students from 3rd year of secondary education from the bilingual section the students chosen to carry out this experiment. The reason for these courses being the ones selected for the study is the following: 1st year of bachillerato bilingual section students and 3rd year of ESO bilingual section students have been exposed to bilingual education, in concrete, CLIL pedagogy since 1st year of primary education; whereas 1st year of bachillerato students from the bilingual program have been exposed to CLIL pedagogy in one content subject during each year of secondary education. By having this in mind, it could be claimed that two variables will be taken into consideration: on the one hand, same cognitive maturity because of their age (1st year of bachillerato from both bilingual section and bilingual program); on the other hand, not the same amount of exposure (as they are two years apart) but high-immersion to the same pedagogy, that is to say, CLIL (1st year of bachillerato bilingual section students and 3rd year of ESO bilingual section students). The total number of students who took part in this study was seventy six: twenty four students attending 1st year of bachillerato from the bilingual section (among them sixteen are enrolled in Ampliación de Inglés), twenty three students belonging to 1st year of bachillerato from the bilingual program (among them eighteen attend Ampliación de Inglés optative) and twenty-nine students from 3rd year of bilingual section obligatory secondary education.

In order for this study to be prepared and carried out, some materials were needed by the researcher, in concrete an IGCSE exam reading component. According to the Cambridge syllabus for IGCSE exams (2015: 3), these exams 'provide opportunities for contextualised learning [...] and develop essential lifelong skills, including creative thinking and problem-solving'. Two types of exams can be distinguished: the Cambridge IGCSE First Language English (0500) or the Cambridge International Level 1/Level 2 Certificate First Language English (0522). With regards to the former, candidates must take two components either Paper 1 (Core) or Paper 2 (Extended) from the reading component, and one of Paper 3 (Core or Extended) or Component 4 (Core or Extended) from the writing component. Students can also sit the Speaking and Listening test or the Speaking and Listening Coursework; however, as these components are optional, marks do not contribute to the overall grade (Cambridge syllabus for IGCSE exams, 2015: 6). Concerning the Cambridge International Level 1/Level 2

Certificate First Language English (0522) candidates have to take three components either Paper 1 (Core) or Paper 2 (Extended) related to the reading component, either Paper 3 (Core and Extended) or Paper 4 (Core and Extended) concerning writing and composition, and the coursework portfolio; and finally, one of Paper 5 (Core and Extended) or Paper 6 (Core and Extended) with regards speaking and listening (Cambridge syllabus for IGCSE exams, 2015: 7).

Since First Language English IGCSE exams are designed for students to develop 'more general analysis and communication skills such as synthesis, inference, and the ability to order facts and present opinions effectively' (p.3) a core IGCSE exam reading component for First Language English (0500) was selected. After reading and analysing some previous year's exams, the one published in May-June 2009 (See Appendix 1) was the one chosen due to two main reasons: the language used was simpler in comparison to other tests and also, the reading topic could draw the students' attention. As students only had fifty minutes to sit this test, the answer sheet taken from the official IGCSE exam reading component was slightly modified as three questions were omitted and one was included (See Appendix 2).

Following on, a detailed analysis of the design of the instrument will be provided. The question format used for testing the students' reading ability was *short-answer questions* model as students had to provide short answers to the given questions. Apart from this, questions in the answer sheet matched the order in which information appeared in the reading comprehension text. Now, the cognitive processes which are elicited in each of the nine questions in the test will be analysed. Starting with the first one, it was formulated as follows: *What are the main characters of the story looking for (paragraph 1)?* By taking the text, the question and its answer into consideration, the cognitive process framed in this question would be *differentiating*. According to Anderson's revision of Bloom's Taxonomy (2001), differentiating is included in the *Analyse* category and it occurs when 'a student discriminates relevant from irrelevant information, or important from unimportant information and then attends to the relevant or important information' (p. 80). This question deals with differentiating an explicit response since the words appearing in the question are the same as the ones in the reading comprehension. In this particular case, differentiating will be assessed by a constructed response and not by a selection task, since students had to

indicate the important part from the given material and not to choose the answer from some possible selected responses (p. 81).

Continuing with the second question, it was presented as *From paragraph 1, give two reasons why the writer wanted to visit the Manu region.* By taking into consideration both the question and how the answer is implicitly located in the text, the cognitive processes students needed to develop in order to correctly respond to the given question would be *differentiating* and *attributing.* As Anderson (2001: 79-83) claimed, both cognitive processes belong to the higher-order thinking skill category of *Analyse* which involves 'breaking the material into its constituent parts and determining how the parts are related to one another and to an overall structure'. In this case, not only did students have to break the material into its constituents but to determine the writer's point of view and intention hidden in his words. All in all, this question requires differentiating and attributing an implicit constructed response and not a selection task since pupils had to develop a response and not to choose from selected answers.

Concerning question number three, it was portrayed as follows: *Explain, using your own words, what the writer means by: truly exhilarating in good conditions, time-oriented society,* and *environmentally conscious*. Since students had to interpret the writer's point of view from the three given sentences, the main cognitive process triggered in this question is *attributing*, which belongs to the *Analyse* category. In addition, the cognitive processes concerning the category of *Create* can be portrayed in the first two expressions. As Anderson and Krathwohl (2001) pointed out, 'deep understanding that goes beyond basic understanding can require the cognitive processes associated with *Create*. To the extent that deep understanding in an act of construction or insight, the cognitive processes of *Create* are involved' (p. 85). Moreover, the two first sentences (*truly exhilarating in good conditions* and *time-oriented society)* deals with attributing and creating an implicit response as no explicit explanations are illustrated apart from the writer's implicit intention. Something different can be observed with expression 3c) *environmentally conscious*, which not only challenges students to apply their *attributing* skills but also their *differentiating* ones. Apart from that, the three questions tackle a constructed response and not a selection task since they were asked to write an answer with their own words.

Following on with the fourth question, it was formulated as *From paragraph four, how long was the journey downhill from Colquepata to Paucatambo?* By taking into consideration both question and answer, and how the given expression is presented in the reading comprehension text, the cognitive process framed in this question would be *differentiating*; cognitive process which is enclosed in the *Analyse* category. In addition, this question tackles differentiating an implicit response from the text and also developing a constructed answer since students needed to create a response from the information given and not to select from a few proposed answers.

Question five was presented as follows: *Explain, using your own words, why the writer says that they felt they "had stepped back centuries", line 21.* By taking into consideration the question, the expected answer and also, how the information is implicitly presented in the reading comprehension text, the cognitive processes taking part in this question are *differentiating* and *attributing* which belong to the *Analise* category, as students had to select the important information in the text from the unimportant one and determine the writer's intention (Anderson&Krathwohl, 2001: 68). Although this question is similar to question number three, in particular, it resembles expression 3c) *environmentally conscious,* due to the fact that though students needed to differentiate, attribute and create meaning, there is an explicit explanation referring to the given expression in the reading comprehension text; whereas in 3a) and 3b) students needed to guess the implicit writer's intention by the general context of the text. Apart from this, question five requires a constructed response and not a selection task as students had to develop a response and not to choose from selected answers.

As regards question number six, it was stated as *Why do you think the writer described the owner of the football pitch as a "nice" man?* By taking into consideration how the question is formulated, the answer required and how it is presented in the reading comprehension text, the main cognitive processes taking part in this question are *differentiating* and *attributing* from the *Analise* category, *Create* if it is understood as recognising a deeper understanding going beyond the basic one which requires an act of construction (Anderson&Krathwohl, 2001: 85) and also *critiquing*, which belongs to the *Evaluate* category. As Anderson defines (2001: 84) 'in *critiquing*, a student notes the positive and negative features of a product and makes a judgment based at least partly on those features. *Critiquing* lies at the core of what

has been called critical thinking'. Therefore, in this question, not only did students have to differentiate important from unimportant information and to interpret the writer's implicit point of view, but also, to critique whether according to the writer's opinion, the man was truly nice or, on the contrary, the writer was being sarcastic.

Continuing with the seventh question, it was illustrated in the reading comprehension test as *From paragraph 6, what reasons do you have for thinking that the writer found the Cock's dance to be disappointing when she saw it the second time?* By keeping in mind the question formulation, the expected answer, and how it is illustrated in the reading comprehension text, the cognitive processes operating in this question are *attributing* (since students needed to interpret the writer's point of view) and *differentiating* (as students needed to develop their capacity to select the important information) both of them enclosed in the *Analyse* higher-order thinking skills category. In this particular case, this question requires attributing and differentiating an implicit response due to the fact that the answer is not explicitly presented. Apart from that, a constructed response is needed as students were not asked to select an expression from the text, but to construct an answer.

With regards to question eight, it was presented as follows: *Why did they have to wait for a bus in Pilcopata (paragraph 8)?* When considering the question formulation, the answer required and how it is portrayed in the reading comprehension text, the cognitive process involved is *differentiating*, skill located in the *Analyse* category. Nevertheless, this question tackles differentiating an explicit response as some of the words which appear in the question are the same as the ones in the text: *They had to wait because all the buses out of the region were full, and there were no more for two days.* Moreover, students were also asked to provide a constructed response.

Finally, concerning the last question, it was portrayed as *Which two-word phrase in the final paragraph tells you that the old woman did not feel angry towards the tourists who left litter?* By taking into consideration the question's formulation, the expected answer and how it is shown in the reading comprehension text, the cognitive processes taking place in this question are *differentiating* and *attributing*; both framed in the *Analyse* category. The answer to this question is absolutely implicitly presented in the text as no explanation with regards to the writer's intention in the expression *without bitterness* is presented in the

reading text. Moreover, in this particular case, students were not asked to construct a response, but to carry out a selection task since they had to relate the explanation provided by the test's statement to the two-word phrase present in the reading comprehension text.

In relation to the assessment criteria, grammar miscues were not negatively considered by the researcher as the aim of the study did not deal with their grammar abilities. In fact, according to the IGCSE Cambridge syllabus (2015: 9) the reading component tests the students' ability to 'demonstrate understanding of explicit meanings; demonstrate understanding of implicit meanings and attitudes; analyse, evaluate and develop facts, ideas and opinions; demonstrate understanding of how writers achieve effects; select for specific purposes'.

In addition, two different questionnaires were prepared: one for 1st year of bachillerato students and one for 3rd year of ESO. The objective of these questionnaires is to observe whether external factors such as attending lessons in private language schools or whether being enrolled in Ampliación de Inglés would influence the results (See Appendix 3).

After having all these materials prepared, students were asked to take the test on the 25th of March 2015 in their ordinary classrooms. Bilingual section and bilingual program bachillerato students sat the exam from 9:05 to 10 a.m. and pupils from 3rd year of ESO bilingual section took it from 11:15 to 12:10 p.m. Concerning bachillerato students, my mentor's and another English teacher's help was needed as both courses had class at the same time, so that they collaborated in the study by supervising students. Furthermore, the study procedure was as follows: first, students were explained what the study was about and were told to separate desks from each other; then, they were given five minutes to fill in the questionnaire; after that, they were provided with the reading comprehension test and the answer sheet and they had fifty minutes to answer the questions. The study instructions were uttered in Spanish in the three courses to make sure all the students understood the aim of the study.

ANALYSIS OF THE DATA

In this section, six tables describing the results obtained in the test and in the questionnaires will be presented. The first three tables show the number of students who provided a correct answer to each of the questions appearing in the reading comprehension tests and also, its correspondent percentages. As questions 2, 3a) and 7 required a double answer with two reasons, the table portrays the number of students who provided a correct answer for each of the reasons and the number of students who gave the two expected reasons for this question. Below each of the questions, the mean of students who provided whether just one or the two reasons required by this question is presented. Question 5 was marked taking into consideration whether students gave only one of the reasons, provided the two reasons required by the question, or wrote a general response. Below this, the mean of students who gave one or the two reasons or a more general response is showed. Question 6 allowed two possible answers, so that the number of students who gave one or the other response and its correspondent percentage is presented. After that, table six illustrates a comparison among the three class results. Table seven shows the IGCSE means obtained by the three courses. Finally, table eight presents the three groups questionnaires results.

1st YEAR OF BACHILLERATO BILINGUAL SECTION STUDENTS			
QUESTION 1)	11/24		
	45.8%		
QUESTION 2)	1st reason	2nd reason	Both reasons
	11/24	17/24	5/24
	45.8%	70.8%	20.8%
	14/24		
	58.3%		
QUESTION 3a)	1st reason	2nd reason	Both reasons
	11/24	12/24	11/24
	45.8%	50%	45.8%
	11.5/24		
	47.9%		
QUESTION 3 b)	11/24		
	45.8%		
QUESTION 3 c)	24/24		

	100%			
QUESTION 4)	22/24			
	91.6%			
QUESTION 5)	1st reason	2nd reason	General	Both reasons
	8/24	12/24	10/24	6/24
	33.3%	50%	41.6%	25%
	15/24			
	62.5%			
QUESTION 6)	Answer 1		Answer 2	
	22/24		0/24	
	91.6%		0%	
	22/24			
	91.6%			
QUESTION 7)	1st reason	2nd reason	Both reasons	
	21/24	13/24	12/24	
	87.5%	54.1%	50%	
	17/24			
	70.8%			
QUESTION 8)	19/24			
	79.1%			
QUESTION 9)	15/24			
	62.5%			

Table 3. Correct answers provided by 1st year of bachillerato bilingual section students in the reading comprehension test.

This table shows the results obtained by 1st year of bachillerato bilingual section students. As it can be observed, more than half of the total number of students provided a correct answer in all the questions except for questions 1, 3a) and 3b). In these cases, there were around 45% to 47% of students, who responded appropriately. In addition, the highest percentages scored by bilingual section students from 1st of bachillerato concerned questions 3c), 4 and 6, with 100%, 91.6% and 91.6% of pupils who showed a correct response for the given questions respectively. It could be deduced from these percentages that, for this group of students, some questions enclosed more difficulty than others.

1st YEAR OF BACHILLERATO BILINGUAL PROGRAM STUDENTS				
QUESTION 1)	8/23			
	34.7%			
QUESTION 2)	1st reason	2nd reason	Both reasons	
	7/23	7/23	2/23	
	30.4%	30.4%	8.6%	
	7/23			
	30.4%			
QUESTION 3a)	1st reason	2nd reason	Both reasons	
	4/23	5/23	3/23	
	17.3%	21.7%	13%	
	4.5/23			
	19.5%			
QUESTION 3 b)	0/23			
	0%			
QUESTION 3 c)	12/23			
	52.1%			
QUESTION 4)	13/23			
	56.5%			
QUESTION 5)	1st reason	2nd reason	General	Both reasons
	2/23	5/23	11/23	1/23
	8.6%	21.7%	47.8%	4.3%
	9/23			
	39.1%			
QUESTION 6)	Answer 1	Answer 2		
	9/23	1/23		
	39.1%	4.3%		
	10/23			
	43.3%			
QUESTION 7)	1st reason	2nd reason	Both reasons	
	15/23	7/23	5/23	
	65.2%	30.4%	21.7%	
	11/23			
	47.8%			
QUESTION 8)	10/23			
	43.4%			
QUESTION 9)	11/23			
	47.8%			

Table 4. Correct answers provided by 1st year of bachillerato bilingual program students in the reading comprehension test.

This table shows the results obtained by 1st year of bachillerato bilingual program students. In general, bilingual program students did not score very high percentages. Nevertheless, it can be observed that still, percentages differ from one question to another; showing that there are certain questions which were more difficult for the students than others. The table illustrates that it was questions 3c) and 4 the ones which were responded correctly by more than half of the total number of students with 52.1% and 56.5% respectively. On the contrary, the questions with the lowest percentages were 3a) and 3b). Concerning the former, 19.5% of pupils provided an appropriate response; as regards the latter, it was not accurately answered by any of the students.

3rd YEAR OF ESO BILINGUAL SECTION STUDENTS				
QUESTION 1)	16/29			
	55.1%			
QUESTION 2)	1st reason	2nd reason	Both reasons	
	12/29	10/29	4/29	
	41.3%	34.4%	13.7%	
	11/29			
	37.9%			
QUESTION 3a)	1st reason	2nd reason	Both reasons	
	4/29	6/29	3/29	
	13.7%	20.6%	10.3%	
	5/29			
	17.2%			
QUESTION 3 b)	5/29			
	17.2%			
QUESTION 3 c)	23/29			
	79.3%			
QUESTION 4)	23/29			
	79.3%			
QUESTION 5)	1st reason	2nd reason	General	Both reasons
	11/29	11/29	9/29	8/29
	37.9%	37.9%	31%	27.5%
	15.5/29			

	53.4%		
QUESTION 6)	Answer 1	Answer 2	
	21/29	0/29	
	72.4%	0%	
	21/29		
	72.4%		
QUESTION 7)	1st reason	2nd reason	Both reasons
	18/29	10/29	7/29
	62%	34.4%	24.1%
	14/29		
	48.2%		
QUESTION 8)	17/29		
	58.6%		
QUESTION 9)	13/29		
	44.8%		

Table 5. Correct answers provided by 3rd year of ESO bilingual section students in the reading comprehension test.

This table illustrates the results obtained by 3rd year of ESO students from the bilingual section. It can be observed that percentages highly differ when comparing results scored by students in each of the nine questions. This fact might mean that some questions may enclose more difficulty than others. In concrete, out of the nine questions, numbers 2, 3a), 3b), 7 and 9 were not answered correctly by more than a half of the students tested. On the other hand, the highest marks were obtained in questions 3c) and 4 with 79.6% of students who wrote a correct response, and question 6 with 72.4% of students who portrayed an appropriate answer.

	1ST YEAR OF BACHILLERATO BILINGUAL SECTION	**1ST YEAR OF BACHILLERATO BILINGUAL PROGRAM**	**3RD YEAR OF ESO BILINGUAL SECTION**
QUESTION 1)	11/24	8/23	16/29
	45.8%	34.7%	55.1%
QUESTION 2)	14/24	7/23	11/29
	58.3%	30.4%	37.9%

QUESTION 3 A)	11.5/24	4.5/23	5/29
	47.9%	19.5%	17.2%
QUESTION 3 B)	11/24	0/23	5/29
	45.8%	0%	17.2%
QUESTION 3 C)	24/24	12/23	23/29
	100%	52.1%	79.3%
QUESTION 4)	22/24	13/23	23/29
	91.6%	56.5%	79.3%
QUESTION 5)	15/24	9/23	15.5/29
	62.5%	39.1%	53.4%
QUESTION 6)	22/24	10/23	21/29
	91.6%	43.4%	72.4%
QUESTION 7)	17/24	11/23	14/29
	70.8%	47.8%	48.2%
QUESTION 8)	19/24	10/23	17/29
	79.1%	43.4%	58.6%
QUESTION 9)	15/24	11/23	13/29
	62.5%	47.8%	44.8%

Table 6. A comparison among the three groups test's results.

When comparing the results obtained by the three groups it can be clearly observed that the highest percentages were scored by 1st year of bachillerato bilingual section students except for the first question where 3rd year of ESO bilingual section students got the highest results. On the contrary, the lowest percentages were scored by 1st year of bachillerato bilingual program students except for questions 3a) and 9, where they surpassed the marks obtained by 3rd year of ESO bilingual section pupils.

READING COMPREHENSION TEST MEANS		
1ST YEAR OF BACHILLERATO BILINGUAL SECTION	**1ST YEAR OF BACHILLERATO BILINGUAL PROGRAM**	**3RD YEAR OF ESO BILINGUAL SECTION**
7.56/11	4.15/11	5.63/11

Table 7. Reading comprehension test means.

This table portrays the three groups' means obtained in the reading comprehension test which was implemented. Although the test contained nine questions, question number three contained three phrases students had to analyse; that is why the mean was counted towards eleven points. As it can be noticed, the highest mean was scored by 1st year of bachillerato from the bilingual section students, followed by the one obtained by 3rd year of ESO bilingual section students and finally, the one scored by 1st year of bachillerato bilingual program pupils.

STUDENTS' QUESTIONNAIRE		
¿Recibes clases de inglés en alguna academia, clases particulares, etc?		
1ST YEAR OF BACHILLERATO BILINGUAL SECTION	**1ST YEAR OF BACHILLERATO BILINGUAL PROGRAM**	**3RD YEAR OF ESO BILINGUAL SECTION**
0/24	1/23	1/29
0%	4.3%	3.4%
¿Tienes ampliación de inglés como asignatura este año?		
1ST YEAR OF BACHILLERATO BILINGUAL SECTION	**1ST YEAR OF BACHILLERATO BILINGUAL PROGRAM**	
16/24	18/23	
66.6%	78.2%	
Ordena de 1 a 5 las siguientes destrezas, siendo 1 la que peor se te da y 5 la que mejor se te da.		
1ST YEAR OF BACHILLERATO BILINGUAL SECTION	**1ST YEAR OF BACHILLERATO BILINGUAL PROGRAM**	**3RD YEAR OF ESO BILINGUAL SECTION**
READING: 90/24	READING: 80/23	READING: 88/29
3.75	3.47	3.03
LISTENING: 66/24	LISTENING: 48/23	LISTENING: 85/29
2.75	2.13	2.93
WRITING: 65/24	WRITING: 68/23	WRITING: 82/29
2.70	2.98	2.82
GRAMMAR: 67/24	GRAMMAR: 63/23	GRAMMAR: 75/29
2.79	2.73	2.58
VOCABULARY: 73/24	VOCABULARY: 85/23	VOCABULARY: 102/29
3.04	3.69	3.51

Table 8. Three groups questionnaires' results.

This table illustrates the results obtained in the questionnaires students filled in before sitting the reading comprehension test. As regards the number of students who attend any private language school or private lessons, only one student from 1st year of bachillerato bilingual program and another one from 3rd year of ESO bilingual section receive additional exposure to the target language by means of language schools or private lessons. Concerning the number of 1st year of bachillerato students who are enrolled in Ampliación de Inglés, sixteen out of twenty-four bilingual section pupils and eighteen out of twenty-three bilingual program ones attend this optative subject. In relation to the third question, students were asked to order different skills (reading, listening, writing, grammar and vocabulary) from 1 to 5, being 5 the skill who they thought they were better at, and 1 the skill they considered to be worse at. 1st year of bachillerato bilingual section believed that the skill they were better at was reading; in contrast to their bilingual program partners and 3rd year of ESO bilingual section students who considered it was vocabulary. As regards the skill students tended to be worse at, 1st year of bachillerato bilingual section pointed out it was writing, 1st year of bachillerato bilingual program students showed it was listening and 3rd year of ESO bilingual pupils claimed it was grammar.

DISCUSSION OF THE RESULTS

In this section, a detailed discussion with regards to the answers provided by the students in the reading comprehension test will be presented first. After that, the students' answers to the questionnaires will be illustrated. Finally, a correlation between the marks achieved in the reading comprehension test and the students' second term English subject marks will be portrayed.

Before starting discussing students' responses to each of the questions, it is important to remind that due to the cognitive processes that students needed to develop while filling in the answers to the reading comprehension test, the nine questions are framed in the higher-order thinking skills (HOTS) according to Anderson and Krathwohl's Taxonomy (2001). As they claimed 'if assessment tasks are tap to higher-order cognitive processes, they must require that students cannot answer them correctly by relying on memory alone' (Anderson

& Krathwohl, 2001: 71); in other words, when taking this test students did not have to *remember*, *understand* or *apply* knowledge, but to *analyse*, *evaluate* or *create* it.

Concerning the first question appearing in the answers sheet, it was not included in the official reading component of the IGCSE exam version. Nevertheless, it was incorporated on purpose due to the cognitive process (*differentiating)* involved in it and the way in which the question was formulated. Question one was presented as follows: *What are the main characters of the story looking for?* The correct answer for this question would be *They are looking for adventure* and it is counted towards one point. According to the results obtained in the reading comprehension test, 55.1% of students from 3rd year of ESO bilingual section answered this question properly, in contrast to 1st year of bachillerato bilingual section students who scored 45.8% and bilingual program ones who got 34.7%. Although the difference between both bilingual groups is not too excessive, younger pupils carried out this task better than the older ones. A great amount of students, concretely, 50% of 1st year of bachillerato bilingual section students, 43.4% of bilingual program 1st year of bachillerato pupils and 34.4% of 3rd year of ESO bilingual section ones did not answer question one appropriately; they all responded to it by starting with the following utterance: *The main characters are...* It needs to be added that 10.5% of 3rd year of ESO bilingual section students did not provide any answer to this question, 4.2% of 1st year of bachillerato bilingual section students did not portray any response and 21.9% of bilingual program pupils left the answer blank. By having these answers into the spotlight, a possible reason for these poor results would be question formation. The given question was *What are the main characters of the story looking for?*, where the noun phrase *the main characters of the story* functions as nucleus. Therefore, students might have focused their attention on the verb *to be* functioning as main verb and not as auxiliary and in the subject, but may have omitted the end of the question, that is, *looking for*. All in all, it could be claimed that one possible reason for bilingual section students to have scored higher marks in this question would be that they might have developed more *differentiating* thinking skills throughout their content and language integrated learning process and had a clearer understanding of the question asked than the rest of their partners.

With regards to the second question in the reading comprehension test, it appeared in the official IGCSE reading component. This question was formulated as follows: *From paragraph 1, give two reasons why the writer wanted to visit the Manu region.* According to the official IGCSE assessment criteria for teachers, this question, whose punctuation is one point, requires a double answer: the first reason would be *To see Peru's National Bird/the Cock of the Rock* and the second reason would be *For adventure.* Therefore, each of the reasons is counted towards half of the point. Moving on to the results obtained for this question, 45.8% of 1st year of bachillerato bilingual section students answered appropriately to the first half of the question, and 70.8% did it correctly with regards to the second half; consequently leading to 58.3% of students getting the response entirely or partially right. In relation to 3rd year of ESO bilingual section students, 41.3% was scored in the first half of the answer and 34.4% was counted for the second reason; leading to a mean of 47.8% of students providing whether just one or the two correct answers. As regards 1st year of bachillerato students from the bilingual program, the same percentage of students answered both halves correctly, 30.4%; resulting in 30.4% of pupils getting the answer entirely or partially right. Besides, although there is a quite long distance between the three obtained means, the miscues made by the three groups of students are truly similar. In fact, there are two common miscues: one related to *differentiating* cognitive skill and another concerning not having a clear understanding of the text. Regarding the former, a great amount of students considered the fact of cycling to the Manu region (Appendix 1, line 2) as a reason for visiting this place, which would be portrayed as a lack of *differentiating* cognitive process from the side of the students. The second miscue is related to apposition, in concrete, lines two and three: *seeing the Peru's National Bird, the Cock of the Rock and then going home.* Since there is not any explicit explanation to the fact that the Cock of the Rock is the proper name of the Peru's National bird, and it is presented as an enumeration, a high percentage of pupils from the three different groups believed that Peru's National Bird and the Cock of the Rock were two different things. Therefore, no points were given to this half of the answer when students wrote the conjunction *and* in between the two previous phrases. In sum, although bilingual section students seem to have developed more *differentiating* and *attributing* skills than bilingual program ones, the miscues made by the three groups were the same.

In relation to question number three, students were asked to use their own words to express what the writer meant in the following sentences: *truly exhilarating in good conditions, time-oriented society* and *environmentally conscious.* The three phrases appearing in this question were all included in the official reading component of the IGCSE exam; however, they were reorganised in a single one for the purpose of the study.

Starting with the analysis of the first phrase *truly exhilarating in good conditions,* according to the teacher's version mark scheme its most appropriate explanation would be *A genuinely/uplifting/experience when the weather is fine*. Thence, as this question is scored out of one point, half of it was assigned for a clear description of how the experience was, and the other half was determined by a clear reference to the weather. According to the results obtained in this question, 45.8% of 1st year of bachillerato students from the bilingual section responded the first half of the answer appropriately, 50% did it correctly with regards to the second half and 45.8% wrote an answer with the two reasons; resulting in 47.9% of students answering the question entirely or partially correct. In relation to 1st year of bachillerato bilingual program pupils, 17.3% focused their answers on how the experience was, 21.7% took into consideration only the second part of the answer dealing with the weather and 13% of the students made the two reasons explicit; leading to a mean of 19.5% of bilingual program students who answered this question entirely or partially right. Furthermore, apart from figures, eleven students from this class out of twenty-three did not provide any answer to this question; in contrast, their bilingual section partners did not leave any blank answer and only six out of twenty-nine of 3rd of ESO bilingual section partners did not write any response. As regards this last group, 13.7% of students wrote a valid answer when describing the experience, 20.6% suggested an appropriate response when writing about the weather conditions and 10.3% provided a correct response including both answers; resulting in 17.2% of 3rd year of ESO bilingual section students answering the question entirely or partially correct.

As figures corresponding to 1st year of bachillerato bilingual students hugely differ from the two other groups, a detailed discussion will take place. Three possible variables should be taken into consideration here: the lexis used in the sentence given, the tense used in the text when referring to this expression and the cognitive processes which students need to apply in order to answer to it correctly. In relation to lexis, two divisions need to be done: one

related to *truly exhilarating* and another one to *in good conditions*. Regarding the latter, a great percentage of students attributed the word *condition* to physical condition and not to weather conditions. Concerning the former, it could be suggested that the majority of students had never heard of these two words before, and as some of them related the second half of the answer to physical conditions, *exhilarating* was attributed an incorrect meaning related to being exhausted or an exhausting experience. In relation to the tense used, the tense preceding the given expression, that is, *Our descend would have been truly exhilarating in good conditions* confines more meaning than students expected. In fact, *would + have + past participle* indicating how something could have been, partly enclosed the writer's implicit intention; that is to say, the descend was not exhilarating due to the foul weather. As regards the third aspect, it has been mentioned before that the main cognitive processes taking part in this question are *attributing* and *creating*. Due to this fact, not only did students have to 'read between lines' in order to guess the writer's intention but also to construct an answer taking into consideration both the lexis of the expression given and the tense used in the reading comprehension text. All in all, the discussion aforesaid might be closely related to why 1st year of bachillerato bilingual section students got a higher score than the other two groups: they have been exposed to much more quantity and quality of input so that they might probably have tackled that vocabulary at any time and they might have more skills on attributing and creating implicit meaning from both lexis and grammar due to their exposure to CLIL methodology.

Moving on to the discussion of the second sentence *time-oriented society,* the mark scheme for teachers suggested *Our way of life which is focused on the clock* to be the most appropriate answer, and its scoring was one point. As figures show, 45.8% of bilingual section students from 1st year of bachillerato gave a correct answer to this question; whereas 17.2% of 3rd year of ESO bilingual section students did it correctly and none of the students attending 1st year of bachillerato from the bilingual program provided a right answer, among them, seven left the answer blank. It can be easily observed that, although percentages are not very high, there is a large difference between the score corresponding to bilingual section and bilingual program students. In order to hypothesise the reasons for this huge difference, two factors need to be taken into consideration: how lexis is presented in the given expression and the cognitive processes which need to be applied by the

students so as to provide a correct answer. Starting with the first one, it can be observed that the nucleus of the noun phrase *society* is accompanied by the adjective phrase *time-oriented*. Due to this fact, it can be deduced that the information provided from the adjective phrase is modifying the nucleus of the noun phrase; resulting in a very packed nominal group. As LLinares, Morton and Whittaker (2012) claim students learning content in a foreign language should be taught the language necessary for each genre. In fact, it is when dealing with the genres of Social science and Science that students should have the opportunity to enhance their language abilities. Examples of these academic language abilities are *nominalising* which is defined as 'the process by which nouns or noun phrases are used to express what may be expressed in a different form in more natural spoken interaction' (p. 335) or *grammatical metaphor*, which is the process of moving the information to different positions in order to express time and cause inside the clause by means of prepositional phrases or lexical items instead of *because* or *so* clauses (p. 257). It could be deduced from this explanation that the lack of academic English from the bilingual program students might have contributed to the results previously presented.

Continuing with the second factor, that is to say, the cognitive processes that are enclosed in this question, *attributing* and *creating* seem to be the ones expected to be applied here. As it can be observed in the reading comprehension text, the given expression *time-oriented society* is framed in the following context: *In those long hours of waiting we developed the art of conversation with complete strangers. In our time-oriented society, it's not something that we usually do.* By having this in the spotlight, the answer is quite implicit as the writer does not provide an explicit explanation for the given expression. Apart from that, different interpretations might match the writer's intention within the whole context like for instance, associating *time-oriented society* with modern society. In fact, the great majority of erroneous answers given by 1st year of bachillerato from the bilingual program students and 3rd year of ESO bilingual section students were that they created an answer related to *nowadays society.* Nevertheless, although this last replacement does not portray the writer's intention, it would fit within the general context of the sentence. All in all, 1st year of bachillerato students from the bilingual section seem to have developed more *attributing* and *create* cognitive skills than their same age partners from the bilingual program and their 3rd year of ESO bilingual section counterpart.

Moving on to the analysis and discussion of the third phrase *environmentally conscious*, the most accurate answer suggested by the teacher's mark scheme for the IGCSE exam reading component was *Aware of the need to respect the natural world.* According to the figures presented in the data results tables, 100% of bilingual section students attending 1st year of bachillerato provided a correct answer. As regards 3rd year of ESO bilingual section students 79.3% of them gave a correct explanation, 13.7% answered it inappropriately and 6.8% left it blank. Concerning 1st year of bachillerato from the bilingual program pupils, 52.1% illustrated a proper interpretation of the given expression; whereas 21.7% provided an incorrect one and 26% did not write any answer. A possible reason for scoring these high percentages might fall on three factors: the Latin root of the nominal group nucleus, the lexis used to modify it and the cognitive processes to be applied by the students in this question. Starting with the former, the nucleus of the noun phrase *environmentally conscious* is *conscious*; that is to say, a word derived from Latin whose correspondent Spanish counterpart would be *consciente.* Moreover, it seems to be important to highlight the adverb which modifies the noun phrase nucleus: *environmentally*. Although it does not resemble any Spanish word, topics related to environment are commonly referred to in the students' books especially in lower courses of ESO and primary. Nevertheless, it needs to be claimed that there is not any reference to environment either in any of the units from 1st year of bachillerato students book (*Advanced Contrast for bachillerato 1.* Burlington Books) nor in the one from 3rd year of ESO (*Ready for First.* Macmillan).

Following on with the third factor, it would be necessary to argue that although one of the main cognitive processes taking part in this question seems to be *attributing* the writer's point of view, the information was not as implicitly presented in the text as in the previous two phrases. The context in which this phrase was framed was the following: *Not a cent reaches out town. They come with all the food they need –even bread and water! And all they leave is rubbish! It struck me then just how important it is to buy locally, and be environmentally conscious in all our actions.* It can be deduced from this paragraph that though the answer was not explicitly written, an explanation of the nominal group *environmentally conscious* was previously provided; this may help students develop not only *attributing* cognitive skills but also, *differentiating* ones. All in all, the combination of these

three variables might have been a possible reason for the high marks scored by the three groups in this question.

Apart from this, the score which corresponds to students attending content and language integrated learning since primary education seem to portray their more advanced capacity to develop higher-order thinking skills, particularly *attributing* and *creating* in the first two utterances, and *attributing* and *differentiating* in the last one.

As regards question number four in the reading comprehension test, it was not included in the official reading component of the IGCSE exam, but it was added on purpose as it will be explained below. This question was presented as follows: *From paragraph four, how long was the journey downhill from Colquepata to Paucatambo?*; its most accurate answer would be *It took us over two hours* and it counted towards one point. As the results obtained show, 91.6% of 1st year of bachillerato students from the bilingual section presented a correct answer; 79.3% of 3rd year of ESO bilingual section students provided a right response and 56.5% of bilingual program ones did it correctly. It is remarkable to point out that none of the seventy-six students who took part in the study left this question blank. One possible reason for having achieved these high percentages in comparison to other questions might be the type of question asked, in this case, one starting with *How long...?*, due to the students' previous knowledge about this kind of questions and the answer they require; that is to say, a response concerning time. In fact, not only bilingual section students from both courses, but also bilingual program ones presented more additional information than the one required by the question: *It took them over two hours although they were told it was only forty minutes*. In addition to that, although percentages are quite high in general, there is a huge difference between the scoring achieved by students following CLIL pedagogy and the one attained by students attending non-bilingual education. Due to this reason and by taking into account the easiness of the question formulation which would indeed facilitate the students' application of their differentiating skills, bilingual section students have shown more capacity to develop *differentiating* higher-order skills than their bilingual program counterpart.

Following on with question number five *Explain, using your own words, why the writer says that they felt they "had stepped back centuries"*, this question was included in the official IGCSE exam reading component and the double answer suggested as the most appropriate by the teachers' mark scheme was the following: on the one hand, *the appearance of the streets and houses*; on the other hand, *the clothes of the people were like those of an earlier time*. As the value for this answer was one point, half of the point was provided when only one response was given. Nevertheless, one more mark scheme was included by the researcher as students were provided with half of the point when a general answer related to presenting a general understanding of the expression without giving explicit explanation about streets and houses, and clothes was illustrated; for instance: *They were in a very old place like some years ago*.

Moving on to the percentages obtained with respect to question number five, 33% of 1st year of bachillerato students from the bilingual section provided a correct answer related to Paucartambo's streets and houses, 50% gave a clear answer concerning the citizens' clothes; 41.6% of students supplied a general response, 25% wrote a complete answer including both reasons, 4.1% gave a wrong response, and 37.5% left one half of the answer blank; leading to a mean of 62.5% of students answering this question entirely or partially correct. Concerning 3rd year of ESO bilingual section pupils, 37.9% furnished an appropriate answer as regards the city's streets and houses, 37.9% provided a correct reason concerning the clothes worn by the citizens, 27.5% included the two reasons, 17.2% did not answer right, and 25.8% left one or both of the answer's halves blank; resulting in a mean of 53.4% of students supplying an entirely or partially correct response. As regards bilingual program students from 1st year of bachillerato, 8.6% of students appropriately argued about Paucartambo's streets and houses, 21.7% provided reasons to support the way citizens dressed, 47.8% furnished a general response, 4.3% included a complete answer with the two correspondent reasons, 21.7% did not supply a correct answer, and 39.1% left one or both halves blank; leading to a mean of 39.1% of students answering partially or entirely right to this question.

In order to discuss the scorings achieved in question five, the following variables will be taken into consideration: the answers provided by the students and the cognitive processes which were triggered by this question. As regards the former, it can be observed in the

previous figures that a great amount of students regardless of the group or their bilingual abilities provided a general response; nevertheless, it was bilingual program students the ones who scored the highest percentage when providing a general response as they may not have a very advanced development of *differentiating* and *attributing* cognitive skills. In fact, it might be interesting to highlight the strategy followed by some bilingual program students, as they literally copied the original sentences which referred to the given question. Concerning the second variable, it has been previously mentioned that although *attributing* and *differentiating* cognitive skills were triggered in this question, the answer seemed not to be completely explicit. In other words, due to the way information was presented in the reading comprehension text (almost explicitly), students could interpret the two reasons why the writer used the expression *had stepped back centuries*: *Paucartambo [...] with cobblestones streets, narrow alleys and whitewashed houses. People in skirts and draped in colourful blankets added an old world charm and we felt we had stepped back centuries*. Nevertheless, although percentages are not very high in comparison to question 3c), whose answer was also almost explicitly presented in the reading text, still bilingual section students from both 1st year of bachillerato and 3rd year of ESO applied more *attributing* and *differentiating* cognitive skills than their bilingual program partners (though some of them got the right answer by copying the response) probably due to their previous years of immersion in CLIL education.

Moving on to question number six, *Why do you think the writer described the owner of the football pitch as a "nice" man?*, it was included in the official IGCSE exam reading component and according to the teachers' mark scheme the most appropriate answer (counted towards one point) was *Because he was welcoming/kind/hospitable in allowing them to camp there*; nevertheless, another answer was also possible: *Allow a convincing explanation that the writer was being sarcastic*. As figures show, 91.6% of 1st year of bachillerato bilingual section students provided a correct answer describing the man as a nice person since he allowed them to camp; 72.4 % of 3rd year of ESO bilingual section students supplied a right answer; and 43.4% of 1st year of bachillerato pupils from the bilingual program furnished an appropriate response. Nevertheless, a deeper analysis needs to be tackled since some interesting answers were provided, specifically, by 3rd year of ESO bilingual section students

and 1st year of bachillerato bilingual program ones. Concerning the former, it needs to be pointed out that some students did not interpret the adjective *nice* correctly; in fact, some students interpreted it as the man being beautiful and handsome. In relation to the latter group, four out of twenty-three students literally copied the evidence: *Because we camped on a nice man's soccer pitch and woke up at midnight to the sound of rain*. Nevertheless, it was a 1st year of bachillerato bilingual program student from this course the only one who interpreted the given sentence as sarcasm: *He don't bring her a house only a football pitch and the word 'nice' has a little sarcasm.* All in all, it could stated that as results illustrate, bilingual section students seem to have developed more *attributing*, *differentiating* and *critiquing* higher-order thinking skills possibly due to the bilingual pedagogy they have been involved in since primary education; however, it needs to be reminded that it was a bilingual program student the only one who presented critical thinking skills differently from their partners.

Continuing with question number seven, *From paragraph 6, what reasons do you have for thinking that the writer found the Cocks' dance to be disappointing when she saw it the second time?*, it was included in the official IGCSE exam reading component and conforming to the teachers' mark scheme, this question requires a double answer: the first reason is *the weather was wet and miserable*, and the second reason is that *very few birds were involved.* Thence, half of the point would be given for each of the reasons. As the results obtained show, 87.5% of 1st year of bachillerato students from the bilingual section supplied a correct answer related to how miserable the weather was that night, 54.1% provided an appropriate response for the very few birds which were involved in the dancing, and 50% of pupils furnished the two answers appropriately; leading to a mean of 70.8% students giving an entirely or partially correct response. In relation to 3rd year of ESO bilingual section results, 62% students provided a clear reason to support the foul weather, 34.4% furnished an appropriate answer concerning the second evidence and 24.1% of students gave the two right responses; resulting in 48.2% of teenager supplying an entirely or partially correct answer as mean. As regards 1st year of bachillerato students from the bilingual program, 65.2% provided a correct answer for the first reason, 30.4% gave a clear explanation concerning the very few birds attending the meeting dancing and 21.7% clearly illustrated

both reasons; leading to a mean of 47.8% pupils who supplied an entirely or partially correct response.

Furthermore, in order to understand these figures two variables need to be discussed: how implicitly the answer was presented in the reading comprehension text and the cognitive processes required by this question. Starting with the former, a huge difference in percentages can be observed between the first expected reason to be suggested by the students and the second one. In fact, 25% of 1st year of bilingual section bachillerato students left one or both answers blank; 31% of 3rd year of ESO bilingual section students did not supply any response; and 43.4% of bilingual program students did not provide any answer. By having a look at the original text, the very little amount of birds that the writer refers to as *very few* is not explicitly followed by the word *bird*. Due to this reason, it might be possible to argue that a great percentage of students did not identify the referent of *very few*; consequently leading to students not supplying this reason or relating *very few* and *dancing* to people and not to birds, like some students wrote: *Because there were few people dancing it and looking for a partner*.

As regards the second variable, that is to say, the relation between the cognitive processes taking part in this question and the percentages obtained, bilingual program students scored higher marks than the ones from 3rd year of ESO bilingual section students. However, the strategy followed by some bilingual program students was to textually copy the answer as this teenager did: *He said: wondering how many would look for a mate in this foul weather. We were right – very few!* According to this, these students might have developed their *differentiating* cognitive skills as they selected the information correctly, but not the *attributing* cognitive ones, since they did not provide any explanation either for the *foul weather* nominal group nor for what the noun *very few* refers to. The reason for bilingual program students to develop this strategy would be their lack of understanding of the word *foul*, and the absence of the term *bird*. All in all, it could be summarised that bilingual section students from 1st year of bachillerato seem to have more abilities to apply their *differentiating* and *attributing* cognitive abilities in comparison to their bilingual program counterpart and 3rd year of ESO bilingual section students.

Moving on to question number eight, *Why did they have to wait for a bus in Pilcopata?*, it was incorporated in the official reading component of the IGCSE exam, and in accordance with the teachers' mark scheme, the most appropriate answer would be *All the ones on that day were full* or *There wasn't another for two days*. As results illustrate, 79.1% of 1st year of bachillerato bilingual section students supplied a correct answer; 58.6% of 3rd year of ESO bilingual section students furnished an appropriate response; and 43.4% of bilingual program students wrote a right answer. It has been mentioned before that, although higher-order thinking skills need to be applied in order to provide a correct response, the evidence was explicitly presented in the text. It could be deduced from this explanation that higher marks than the ones got were expected from the three courses. Nevertheless, though percentages considerably differ from bilingual section students to bilingual program ones, miscues made by students regardless of their implication in CLIL pedagogy were the same as they wrote the following: *They got their bikes repaired*. In concrete, two bilingual section students from 1st year of bachillerato provided this response; eight bilingual program students gave this reason; and ten 3rd year of ESO bilingual section pupils supplied this answer. All in all, students from 1st year of bachillerato bilingual section tend to develop their *differentiating* cognitive abilities quite appropriately probably due to their previous training while attending content and language integrated learning; in contrast to the other two groups which seemed not to do it appropriately as they might have focused their attention on finding a reason and not on the way the question was formulated and the words involved in it.

Continuing with the last question, it was included in the official IGCSE exam reading component and was presented as follows: *Which two-word phrase in the final paragraph tells you that the old woman did not feel angry towards the tourists who left litter?* Consistent with the teachers' mark scheme, the most appropriate answer for this question would be *Without bitterness*. As figures illustrate, 62.9% of bilingual section students attending 1st year of bachillerato explicitly wrote the expected two-word phrase; 47.8% of 1st year of bachillerato bilingual program students provided the correct answer; and 44.8% of 3rd year of ESO bilingual section students supplied the right response. In order to discuss these percentages attention needs to be focused on two variables: the answers given by the

students and the cognitive processes required by this question. To begin with, a wide range of different responses were provided by the three groups of students: some of them believed that *two-word phrase* referred to writing two different sentences and also, some others supplied an explicative sentence instead of a two-word phrase. Even two bilingual section students (one from 1st year of bachillerato and another from 3rd year of ESO) furnished the following two-word phrase: *need – even*. This two-word phrase does not make any sense and, in fact, it is grammatically incorrect; nevertheless, it seems that this pair of pupils considered the hyphen as linking a two-word phrase, but in contrast to that, it is an English hyphen used to add more information which corresponds to the Spanish parenthesis. In relation to the cognitive skills taking part in this question, the process of *differentiating* was not only present when looking for the answer in the reading comprehension test, but also in the question itself due to the fact that not considering *two-word phrase* as important information would definitely lead to an incorrect response. Furthermore, students had to develop their *attributing* abilities due to the lack of neither explicit nor implicit explanation, just the writer's intention. Apart from that, 1st year of bachillerato students from the bilingual program scored a higher percentage than 3rd year of ESO bilingual section pupils. A possible reason to support these results might be the kind of task required by this question, that is to say, students carried out a selected task and not a constructed response. By taking this into account, and comparing this question with question number five in which the cognitive processes involved were also *differentiating* and *attributing* but they were asked to give a constructed response, it could be asserted that bilingual program students might have more abilities to apply *differentiating* and *attributing* abilities in selection tasks than in constructed ones. All in all, it is 1st year of bachillerato students from the bilingual section the ones who got the highest scoring possibly due to the CLIL pedagogy they have been involved in since primary education.

As it has been mentioned before, students were provided not only with a reading comprehension test but also with a short questionnaire. One reason for asking them to fill it in was to examine if any correspondence could be done as regards the results obtained in the test and some external factors such as quantity of extra exposure to the target language due to their attendance to any private language schools or to Ampliación de Inglés. Another

reason was to determine whether there exists any possible correlation between the skills they believe they are better at (the focus will be on reading), and the marks obtained in the IGCSE exam reading component. In addition, it should be necessary to mention that 1st year of bachillerato questionnaire was slightly different from the one for 3rd year of ESO. Concerning the former, it was made up of three questions: *¿Recibes clases de inglés en alguna academia, clases particulares, etc?*; *¿Tienes Ampliación de Inglés como asignatura este año? Si la respuesta es sí, explica brevemente el motivo de la elección de dicha asignatura*; *Ordena de 1 a 5 las siguientes destrezas (Reading, Listening, Wrtiting, Grammar and Vocabulary) siendo 1 la que peor se te da y 5 la que mejor se te da*. As regards 3rd year of ESO questionnaires, the question related to Ampliación de Inglés was omitted since this optative subject is only implemented in Bachillerato.

According to the figures obtained in the first question, none of 1st year of bachillerato bilingual section students attends any language school so as to improve their second language acquisition, and only one teenager in 1st year of bachillerato from the bilingual program and another pupil from 3rd year of ESO bilingual section receive private lessons. It could be deduced from these results that the only official target language input they receive comes from their secondary or bachillerato lessons. Furthermore, moving on to the second question related to Ampliación de Inglés, 66.6% of 1st year of bachillerato bilingual section students attend this optative; in contrast to their bilingual program partners where almost 80% of the class are enrolled in this subject. Nevertheless, the reasons why both groups of students chose this optative differ; whereas the majority of bilingual program pupils embraced Ampliciación de Inglés to enhance their level of English as they considered it to be important for their professional futures (72.2%), bilingual section students chose this subject in order to enlarge their bachillerato mean (20%); as they dismissed the other available optative (33.3%); and to improve their second language learning (46.6%).

Thus, if students were portrayed in an increasing scale of quantity of input along their careers, this would be the order: bilingual program students from 1st of bachillerato not enrolled in Ampliación de Inglés, bilingual program students from 1st of bachillerato attending Ampliación de Inglés, 3rd year of ESO bilingual section students, 1st year of bachillerato bilingual section pupils not enrolled in Ampliación de inglés, and finally, 1st year of bachillerato bilingual section students with Ampliación de Inglés as optative. Therefore,

students attending CLIL pedagogy and Ampliación de inglés can be expected to have the highest scorings at the reading comprehension test due to two reasons: the quantity and quality of input because of bilingual education and the cognitive skills developed throughout those years; in contrast to bilingual program students not attending Ampliación de inglés, who are supposed to have scored the lowest marks.

The means obtained in the reading comprehension test that was implemented partially support this hypothesis: bilingual program students from 1st of bachillerato not enrolled in Ampliación de Inglés got 3.3 out of 11 points; bilingual program students from 1st of bachillerato attending Ampliación de Inglés scored 4.47 out of 11; 3rd year of ESO bilingual section students got 5.63 out of 11 points; 1st year of bachillerato bilingual section students not enrolled in Ampliación de inglés obtained 7.61 out of 11; finally, 1st year of bachilleraro bilingual section students with Ampliación de Inglés as optative scored 7.53 out of 11 points. It can be observed that the means obtained from 1st year of bachillerato bilingual section students who are or not enrolled in Ampliación de ingles subject slightly differ and do not support the aforesaid hypothesis as 1st year of bachillerato bilingual section students who are not enrolled in Ampliación de inglés scored a higher mean than the ones who do not attend this optative. Due to this reason, it could be stated that the fact of having four more weekly hours of an optative English subject this current course does not improve their marks, as they have been involved in CLIL pedagogy since primary education. On the contrary, there is a clear difference between the marks obtained by 1st year of bachillerato bilingual program students who attend this optative and the ones who do not attend it, getting higher marks the students who are exposed to more quantity of target language input.

As regards the third question in the questionnaire students were asked to order from one to five the different skills they are evaluated at in secondary school, that is to say, reading, listening, writing, grammar and vocabulary, according to how good they feel they are at them. Ordering differ from bilingual section to bilingual program students. Since the IGCSE tackles reading abilities, it is in this skill that the discussion will be focused on. Up to five points, 1st year of bachillerato bilingual section students gave 3.75 points to reading, 3.04 to vocabulary, 2.79 to grammar, 2.75 to listening and 2.70 to writing. Concerning 1st year of bachillerato bilingual program students, they provided 3.69 up to five points to vocabulary,

3.47 to reading, 2.95 to writing, 2.73 to grammar, and 2.13 to listening. Finally, regarding 3rd year of ESO bilingual section, pupils recognised vocabulary to be the skill they are better at (3.51), then reading (3.03) and after that listening (2.93), writing (2.82) and grammar (2.58). Thus, it could be argued from these figures that the highest mean for reading comprehension provided by the students in the questionnaire and the highest mean in the IGCSE exam reading component were scored by 1st year of bilingual section bachillerato students.

After having analysed and discussed both the reading comprehension test and questionnaires, one more reflection needs to be done. To begin with, as can be seen in Appendix 4 the best four marks from each of the three groups in the reading test implemented were selected and compared to the English second term marks achieved by those same students. In fact, there is a clear relation between those marks, since the students who got the best reading comprehension marks, are the ones who scored the best English subject marks in the second term regardless their bilingual or non-bilingual education.

CONCLUSIONS

In conclusion, this paper has dealt with three secondary school groups in order to study the cognitive skills applied while answering to a reading comprehension test and its pedagogical implications. The research questions this study has been based on are the following: *Which of the three groups show more capacities to apply higher-order thinking skills in the same reading comprehension test?*, *Are the results obtained in the reading comprehension test related to the type and quantity of exposure to English?, Are those results more related to age or cognitive maturity of the students?* and *Is there any correlation between the student's second term marks at secondary school and the ones obtained in the reading comprehension test concerning their performance in HOTS?*

Starting with the first research question, *Which of the three groups show more capacities to apply higher-order thinking skills in the same reading comprehension test?*, and according to the results obtained in the reading comprehension tests, 1st year of bachillerato from the

bilingual section students do not seem to portray any problem when applying *differentiating*, *attributing* and *critiquing* HOTS cognitive processes. Concerning 3rd year of ESO from bilingual section, students seem to have the ability to apply as well, *differentiating*, *attributing* and *critiquing* cognitive processes. Finally, as regards 1st year of bachillerato from the bilingual program, students tend to have more capacity to apply their *differentiating* and *attributing* cognitive skills especially in selection tasks. Furthermore, by keeping the results obtained in the test in mind, 1st year of bachillerato from the bilingual section students seem to have developed more higher order thinking skills than their bilingual program partners and students attending 3rd year of ESO bilingual section. In fact, the three groups' reading comprehension tests' mean was calculated placing 1st year of bachillerato bilingual section students in the first position with 7.56 out of 11 points; followed by 3rd year of ESO bilingual section with 5.63 point out of 11; and finally, 1st year of bachillerato from the bilingual program with 4.15 out of 11 points. The standard deviation was calculated for each of the three groups; leading to 1.68 for 1st year of bachillerato bilingual section, 1.93 for 1st year of bachillerato bilingual program, and 2.12 for 3rd year of ESO bilingual section. These figures show that, as they are quite close to 0, the marks obtained in the test tend to be close to the mean.

Continuing with the second and third research questions, *Are the results obtained in the reading comprehension test related to the type and quantity of exposure to English?* and *Are those results more related to age or cognitive maturity of the students?* and having in mind the reading results previously presented, HOTS' development is related to a combination of the students' quantity and quality of exposure to CLIL pedagogy (as both students from 1st year of bachillerato bilingual section students and 3rd year of ESO bilingual section ones who have been deeply immerse in CLIL pedagogy scored higher marks than their bilingual program counterparts) and their cognitive maturity (since there is a huge difference concerning the marks obtained between the two bilingual section groups who have been exposed to CLIL pedagogy since primary education).

As regards questionnaires, according to the figures obtained, bilingual program students enrolled in Ampliación de Inglés scored higher marks in the reading test than bilingual program ones not attending this optative. Nevertheless, it does not apply to their bilingual section counterparts, since bilingual section students involved in this subject got lower

marks than the students who do not attend it. It could be deduced from these facts that when pupils have been involved in a bilingual context since primary education, having four more hours of exposure to the target language does not make any vast difference; in contrast to bilingual program students who have only had one content subject taught in English apart from the English subject during secondary education and consequently, taking four more weekly hour of English lessons may mean doubling their time of exposure to the target language.

Following on with the last research question *Is there any correlation between the student's second term marks at secondary school and the ones obtained in the reading comprehension test concerning their performance in HOTS?*, the three groups' secondary school marks from the second semester were also examined, leading to a direct correlation between the marks achieved in the reading comprehension test and the ones got in the English subject. In other words, the highest marks from both the reading comprehension test and the English subject were achieved by the same students.

Moving on to the pedagogical implications which lie beneath this study, it needs to be stated that as it has been mentioned along this paper, the way a question is formulated in a reading comprehension task may require students to apply a different cognitive process. Teachers need to be aware of the fact that if students are provided with a reading comprehension test where the question triggers an answer which explicitly appears in the reading comprehension test, they will need to apply their *differentiating* cognitive skills. If they are asked to provide reasons why the writer said or did something in the reading, the question will enclose students' capacity to *differentiate* and *attribute.* When it is necessary for the students to construct a deeper understanding, they will need to apply their *create* cognitive skills; and when students need to provide their opinions about some pieces of information uttered by the writer, they will need to apply not only their *critiquing* cognitive abilities but also their *differentiating* and *attributing* ones as the question may implicitly suggest giving the information which appears in the reading text by using their own words.

Taking everything into consideration it could be claimed that my hypothesis is partly supported by this research. To begin with, students from 1st of bachillerato bilingual section attending IES Isaac Albéniz applied more higher-order thinking skills when this study was

carried out, followed by their 3rd year of ESO partners and continued by their bilingual program counterpart; from which it could be deduced that having the ability to apply more higher-order thinking skills might be related to a combination of both their cognitive maturity and their involvement in CLIL education. Nevertheless, students who have been highly immersed in CLIL pedagogy and also attend Ampliación de Inglés optative, that is to say, students taking the largest amount of exposure to the target language did not get the highest results in the reading comprehension test. Furthermore, students with higher marks in the second term English subject also scored the highest results in the reading test.

To conclude, before carrying this study out the main objective was to investigate on the development of cognitive processes, concretely higher-order thinking skills in bilingual section and bilingual program students from the same age, and younger bilingual students. However, while analysing the data, it was me, as researcher, the one who became aware of the great importance for teachers to realise on the importance of question formulation in reading tasks, since the way it is presented will trigger the development of a certain cognitive process either HOTS or LOTS.

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APPENDIX 1

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

FIRST LANGUAGE ENGLISH 0500/01

Paper 1 Reading Passage (Core) May/June 2009

Read the following passage carefully, and then answer all the questions.

Ariana Svenson works for Apus Peru Adventure Travel Specialists, a company that offers you opportunities to visit little-known places. Here she writes about a cycling journey across the Andes Mountains in South America, through varied scenery.

OK. I admit it, we go looking for adventure. We had always wanted to visit the Manu region but it had seemed hopelessly expensive so we had the idea of cycling there, seeing Peru's National Bird, the Cock of the Rock, and then going home.

It was low season and although it was totally the wrong time of year to be crossing mountain passes, we set off, armed with an excess of wet weather gear, and brimming with enthusiasm. Two minutes after we had reached the top of a mountain pass it was hailing and we were drenched.

Our descent would have been truly exhilarating in good conditions – when it's freezing it is hellish. Our hands, though gloved, were the first part to lose feeling – not good when you need to be able to feel your hands to apply the brakes on hairpin corners! Your lips go numb first, and then your nose starts running and your knees begin to freeze up in the cold. It was pure agony. An Andean village, that appeared to be warmly welcoming from above, was coldly abandoned and shut up as we passed by closed doors.

About three hours later, bedraggled and miserable, we arrived at Colquepata. There they told us it was only another forty minutes downhill to Paucartambo: it took us over two hours! At least the journey was downhill and at its best there were smooth roads, good gradients and high speeds. We passed through pretty farmland, groups of eucalyptus trees and herds of cattle and sheep on their way home at the end of the day.

Paucartambo emerged around the corner, a charming place, with cobblestone streets, narrow alleys and whitewashed houses. People in skirts and draped in colourful blankets added an old world charm and we felt that we had stepped back centuries.

Later we arrived in San Pedro to see the Cock of the Rock birds doing their mating dance. We camped on a nice man's soccer pitch, and woke up at midnight to the sound of rain – incessant, heavy, continuous rain that pelted the tent with a somewhat dismaying regularity. We roused ourselves and

trudged through the muddy quagmire to see the Cocks' dance again, wondering how many would look for a mate in this foul weather. We were right – very few!

Following a flat tyre, brake adjustments and load rearrangements, we were jolting our way downhill again, through ever more beautiful and warm jungle. Soon we were racing along through pampas luxuriant with grasses – the rich moist air of the jungle filled our lungs which felt as if they had been starved in the Andes. It was heady and intoxicating – and we just wanted to smile and laugh, out of sheer happiness. Great flocks of big, bright, buttercup-yellow butterflies were feeding on the road and when we passed they fluttered up and surrounded us, so we were cycling in a haze of butterflies – utterly dreamlike!

We continued to the village of Pilcopata where we managed to get some necessary repairs done to the bikes. We decided to travel further by local bus but had to wait because all the buses out of the region were full, and there were no more for two days.

In those long hours of waiting we developed the art of conversation with complete strangers. In our time-oriented society, it's not something that we usually do. Everyone is far too busy or has lots of friends. However, in the heat of the jungle people aren't in a hurry and are happy to discuss things with strangers. I got into a conversation with an old woman who had lived all her life in the region. She exclaimed, "Do you know how much tourists pay to visit Manu?" She added, without bitterness, "Not a cent reaches our town. They come with all the food they need – even bread and water! And all they leave is rubbish!" It struck me then just how important it is to buy locally, and be environmentally conscious in all our actions. I am glad that when we travel we buy at small shops and eat in local restaurants. You can't please everyone, but you can make a difference.

APPENDIX 2
STUDENTS' WORKSHEET

NAME AND SURNAME:
GROUP:

(1) What are the main characters of the story looking for (paragraph 1)?

(2) From paragraph 1, give two reasons why the writer wanted to visit the Manu region.

(3) Explain, using your own words, what the writer means by:

- "truly exhilarating in good conditions" (line 8)
- "time-oriented society" (line 38)
- "environmentally conscious" (line 44)

(4) From paragraph four, how long was the journey downhill from Colquepata to Paucatambo?

(5) Explain, using your own words, why the writer says that they felt they "had stepped back centuries" in line 21.

(6) Why do you think the writer described the owner of the football pitch as a "nice" man (line 23)?

(7) From paragraph 6, what reasons do you have for thinking that the writer found the Cocks' dance to be disappointing when she saw it the second time?

(8) Why did they have to wait for a bus in Pilcopata (paragraph 8)?

(9) Which two-word phrase in the final paragraph tells you that the old woman did not feel angry towards the tourists who left litter?

APPENDIX 3

1ST YEAR OF BACHILLERATO QUESTIONNAIRE

NOMBRE Y APELLIDOS:

GRUPO:

☐ PROGRAMA BILINGÜE ☐ SECCIÓN BILINGÜE

1. ¿Recibes clases de inglés en alguna academia, clases particulares, etc?

☐ SI ☐ NO

2. ¿Tienes ampliación de inglés como asignatura este año?

☐ SI ☐ NO

Si la respuesta es sí, explica brevemente el motivo de la elección de dicha asignatura

3. Ordena de 1 a 5 las siguientes destrezas, siendo 1 la que peor se te da y 5 la que mejor se te da.

☐ Reading

☐ Listening

☐ Writing

☐ Grammar

☐ Vocabulary

3RD YEAR OF ESO QUESTIONNAIRE

NOMBRE Y APELLIDOS:

GRUPO:

1. ¿Recibes clases de inglés en alguna academia, clases particulares, etc?

☐ SI ☐ NO

2. Ordena de 1 a 5 las siguientes destrezas, siendo 1 la que peor se te da y 5 la que mejor se te da.

☐ Reading

☐ Listening

☐ Writing

☐ Grammar

☐ Vocabulary

APPENDIX 4

Table 7. 1st year of bachillerato bilingual section students' marks in the reading comprehension test implemented and in the second term English subject.

1ST YEAR OF BACHILLERATO BILINGUAL SECTION STUDENTS' MARKS		
STUDENTS' NAME	**READING TEST MARKS**	**ENGLISH SUBJECT MARKS**
Student 1	4.5	5
Student 2	**9**	**9**
Student 3	4.5	5
Student 4	**8.6**	**9**
Student 5	**9.5**	**9**
Student 6	6.8	4
Student 7	6.3	7
Student 8	8.1	9
Student 9	7.2	6
Student 10	7.2	7
Student 11	7.2	8
Student 12	5.9	7
Student 13	6.3	8
Student 14	8.1	6
Student 15	**9.5**	**9**
Student 16	6.3	8
Student 17	7.7	8
Student 18	7.2	8
Student 19	5	8
Student 20	4	8
Student 21	6.8	6
Student 22	5.4	8
Student 23	6.8	8
Student 24	5.9	6

Table 8. 1st year of bachillerato bilingual program students' marks in the reading comprehension test implemented and in the second term English subject.

1ST YEAR OF BACHILLERATO BILINGUAL PROGRAM STUDENTS' MARKS		
STUDENTS' NAME	**READING TEST MARKS**	**ENGLISH SUBJECT MARKS**
Student 1	2.7	5
Student 2	3.6	7
Student 3	2.7	6
Student 4	**6.3**	**8**
Student 5	5	8
Student 6	2.7	7
Student 7	3.6	6
Student 8	3.1	3

Student 9	3.1	6
Student 10	**5.9**	**8**
Student 11	3.1	6
Student 12	4.5	6
Student 13	5.9	6
Student 14	1.3	3
Student 15	5	3
Student 16	3.1	5
Student 17	0.9	4
Student 18	2.7	6
Student 19	**7.2**	**8**
Student 20	2.7	6
Student 21	1.8	5
Student 22	2.2	4
Student 23	**6.8**	**8**

Table 9. 3rd year of ESO bilingual section students' marks in the reading comprehension test implemented and in the second term English subject.

3rd YEAR OF ESO BILINGUAL SECTION STUDENTS' MARKS		
STUDENTS' NAME	**READING TEST MARKS**	**ENGLISH SUBJECT MARKS**
Student 1	3.6	6
Student 2	5.9	7
Student 3	6.3	6
Student 4	4	5
Student 5	5	5
Student 6	5.4	7
Student 7	5	8
Student 8	5.9	7
Student 9	6.3	7
Student 10	3.1	6
Student 11	5.4	7
Student 12	6.8	9
Student 13	2.2	6
Student 14	4.5	6
Student 15	5.4	7
Student 16	1.3	6
Student 17	1.3	4
Student 18	5	6
Student 19	**7.2**	**9**
Student 20	6.3	8
Student 21	2.7	7
Student 22	**8.6**	**9**

Student 23	4	6
Student 24	6.3	7
Student 25	**7.7**	**9**
Student 26	8.1	8
Student 27	**7.2**	**9**
Student 28	3.6	7
Student 29	3.1	4