

## What Students Tell Teachers about Practices that Integrate Subjects with English in a Lower Secondary School in Portugal<sup>1</sup>

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**Abstract** | CLIL (Content and Language Integrated Learning) is an approach thought to provide, mainly during Content (non-language, subject) classes, a meaningful environment at school for the use and learning of a foreign language (FL), and may also improve conditions and practices of the specific subject. Moreover, CLIL can represent a research context to gauge the importance of language-aware teaching as is the case with the Portuguese “English Plus” project (EP), in which History and Science are taught/ learnt with/in English at lower secondary school. Our doctoral research is designed as a descriptive-explanatory case study on the EP project and its participants (English and Science teachers, former and current students). More specifically, this work focuses on students and shows their relationship with the EP approach and (dis)advantages in learning a subject with a FL. Data were collected through a semi-structured questionnaire and interview, with subsequent content analysis. The importance of “integrated learning” and of diverse strategies used by the teacher to support/scaffold learning is present in students’ perspectives which may further influence teaching practices.

**Key words** | CLIL (Content and Language Integrated Learning), English as a foreign language, subjects (History and Science), language-aware teaching, students’ perspectives

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## 1. Introduction

When considering the importance of scientific literacy (Roberts and Bybee; Vieira, Tenreiro-Vieira and Martins) and language proficiency (Common European Framework of Reference for Languages, CEFR, Council of Europe) for education and its global demands, research on the “combination” of Science education and English language learning as well as on the language focus of Science education (Lin; Bunch, Shaw and Geaney; Wellington and Osborne) is highly relevant. For many students the greatest difficulty in studying Science is to learn the language of Science, therefore a language-focused Science education is justified (Wellington and Osborne). Owing to the presence of a foreign language (FL), Content and Language Integrated Learning (see section 2 below) represents a possible educational approach for scholars to gauge the importance for (Science) teachers of becoming language-aware (Blanchard, Masserot and Holbrook; Coyle, Hood and Marsh; Wolff).

As claimed by Scott, Mortimer and Aguiar, researchers should work on understanding how the construction of scientific knowledge develops through language and other modes of communication. Research is also required on CLIL Science learning contexts, in which an additional language has to be learnt besides the mother tongue. Furthermore, a greater collaboration between applied linguists and researchers in subject-specific education is sought in studies on CLIL practice (Nikula, Dalton-Puffer and Llinares). For more than ten years, works mapping European CLIL initiatives at compulsory school levels contained no reference to Portugal [European Commission, “Content and Language Integrated Learning (CLIL) at School in Europe”], but recently more and more projects have appeared (European Commission, “Key Data on Teaching Languages at School in Europe – 2017”). Nevertheless, corresponding research is still represented by individual examples and many studies are focused on the tertiary level.

The relevance of carrying out research on school programmes, such as the Portuguese CLIL-type “English Plus” project (first in History then Science) presented here, is clear. More specifically, the objective of this work (part of a broader PhD study) is the characterization of students’ perspectives through exploring their relationship with the “integration project” and its approach, as well as benefits

and difficulties they identify in learning a specific discipline with/in a FL. Their point of view may contribute, in turn, to a reflection on and orientation of educational practices.

## 2. The CLIL Educational Approach

Considered as one strategy to promote plurilingual and intercultural education (Beacco *et al.*) and one possible initiative for foreign language education in Europe (European Commission, “Civil Society Platform on Multilingualism”), CLIL is described as “any dual-focused educational context in which an additional language, thus not usually the first language of the learners involved, is used as a medium in the teaching and learning of non-language content” (Marsh, “CLIL/EMILE – The European Dimension” 2). It stems from immersion programmes of bilingual countries such as Canada, but differences have been noted in CLIL initiatives: for instance, the “non-nativeness” of teachers and students, and readapted/scaffolded teaching materials (Lasagabaster and Sierra).

According to Krashen’s theory on Second Language Acquisition, languages are learnt while they are used, and CLIL classes are authentic learning environments to achieve communicative competence through daily classroom activities (Dalton-Puffer and Nikula). As opposed to what happens in traditional language classes where form and structure of a FL are the main learning object, in CLIL language and content (of a specific subject) converge in a “dual focus” for learning and teaching (Coyle, Hood and Marsh; Marsh *et al.*; Pavón Vázquez and Ellison). CLIL is flexible. There is no formula for organising a CLIL programme; it is the context that determines this (Coyle, “CLIL Planning Tools for Teachers”). However, the 4Cs framework (Coyle, Hood and Marsh 53-56) is useful for planning CLIL lessons where students learn subject topics (**C**ontent: new knowledge, skills and understanding) and related **C**ultural and societal issues, through activities which provide **C**ognitive challenge; at the same time, they **C**ommunicate and learn how to use the languages **O**F, **F**OR and **T**HROUGH learning (the so called “language triptych”, cf. Coyle).

In making the language use authentic for the specific need to understand content and to construct meaning (Coyle, Hood and Marsh), CLIL promotes interaction between learners who

thus become central in the learning process (Ting). As Mehisto clarifies, quality CLIL implementation is based on intention and process visibility, and may foster learner autonomy and cooperative learning, self and peer formative assessment (17-25); it requires the development of a “language-supportive pedagogy” (Clegg) also through a diversity of teacher scaffolding strategies. Actually, challenges encountered using an additional language increase teacher awareness of learner linguistic needs (Blanchard, Masserot and Holbrook; Marsh, “Content and Language Integrated Learning. A Development Trajectory”) and a possibly better treatment of content (Escobar Urmeneta and Evnitskaya). Major difficulties in the implementation of CLIL classes are caused not by using a FL, but by the lack of appropriate methodology used in class (Barbero). Students not having sufficient time to apply what they have learned is indicated as the main constraint (Beacco et al.; Coyle, Hood and Marsh; Marsh and Langé; Milton and Meara); other obstacles typical of such programmes are curriculum and policy constraints, as well as limited material.

In defiance of these aspects, CLIL is acknowledged as a “change agent”: it provides experiences in more than one language within monolingual learning environments (Coyle, “An Investigation into ‘Successful Learning’ across CLIL Contexts”) and entails teaching strategies that prepare any teacher to work in CLIL-like contexts in European schools<sup>2</sup> (Wolff). Therefore, reflecting on “beliefs, values and practice” is fundamental (Pavón Vázquez and Ellison 77), “to equip CLIL teachers to bear the challenge of that change” (Pérez Cañado 217). One possible way is to understand the student perception of CLIL projects and of learning through CLIL. A variety of approaches to exploring student perspectives about and attitudes toward such programmes exists (Tedick and Cammarata). The present study aims to continue and extend previous studies on CLIL learners’ points of view in Portugal (Simões et al.) as well as to integrate voices from students of different ages.

### 3. Context, Participants and Methods

In Portugal, alongside the top-down *Programa Escolas Bilingues em Inglês / Bilingual Schools Programme* (organised by the Ministry of Education and the British Council and currently involving 25 state school clusters<sup>3</sup>), different bottom-up CLIL initiatives developed by teachers exist. We describe here the CLIL-type “English Plus” (EP) project, implemented in one lower secondary state school (from the 7<sup>th</sup> to the 9<sup>th</sup> grades) in North Portugal (District of Aveiro). The EP project integrates the use/learning of English with History (from 2010 to 2013, Simões et al.) and Science (since 2014 onwards, Piacentini, Simões and Vieira, “Holistic Approach in the Portuguese Education System to Develop Literacies of Science Integrated with English” and “The Language Focus of Science Education Integrated with English Learning”).

Considering the specificity of the project, a descriptive-explanatory case study was designed in 2015-2016 within our doctoral research. It is an in-depth study, having teachers and students “constructing the reality” of EP at different times and levels. In the present work we focus on students, with the following profiles, A and B:

- A. Lower secondary school students provided with EP in Science in the year of the study (current students); N = 96: 44 7<sup>th</sup> graders in their first year of the project and 52 8<sup>th</sup> graders in their second year;
- B. High school students in the year of the study who previously (2010-2013) had EP in History (former students); N = 11: 1 in Humanities (sHum-10), 4 in Economics (sEcn-4,5,8,9) and 6 in Science (sSci-1,2,3,6,7,11).

EP students attended on a weekly basis: 45 minutes of History or Science with English (co-teaching: both the subject teacher and the English one are present and using English); 45 minutes of same subject (single-teaching: classes are given by the non-language teacher alone, who can choose to use Portuguese or English); 45 minutes of English on socio-cultural subject-

-related topics (project time: only the English teacher is present). The “English Plus” project means the engagement of all participants (including parents), in and out of school: it requires of teachers more complex planning and implementation of classes; for students, it is demanding and requires more responsibility and autonomy. Students are usually involved in extra-curricular activities related to the project: school trips and their organization; cinema sessions and theatre performances; open day, and so on.

During the broader PhD-related empirical study, data from students were collected, in the Portuguese language, through the following techniques<sup>4</sup> for the cohorts as defined above:

- A.** because of the large number of current students, an online semi-structured questionnaire was administered; questions about the importance given to the EP project in Science (Q18.1) and advantages/disadvantages connected with the project (Q20/Q21) were selected for the purpose of this paper;<sup>5</sup>
- B.** considering the maturity and small number of former students, a semi-structured interview was conducted; questions about the opinion on the EP project in History (Q1) and differences between single-teaching and co-teaching in non-language classes (Q4) were selected for this paper.<sup>6</sup>

Qualitative content analysis was performed on open-ended (questionnaire) and transcribed (interview) answers, resulting in inductive coding (peer-checked). We first present results emerging from data collected from former students, then those from current students.

#### 4. Findings: Presentation<sup>7</sup> and Interpretation

##### 4.1. Learning through EP-History for Former Students

###### Perspectives on Disciplines Involved and the Approach

Students were prompted as follows: *I would like you to express your opinion about the “English Plus” project in History...* (Q1). As evident in Figure 1, their answers indicate an accomplishment in: Language (English); learning experience (different activities and membership); composite learning (when both English and History are mentioned as combined); Content (History). Answers are given in descending order: 11 students indicate “Language”; 7, “learning experience”; 6, “composite learning”; 5, “Content”.

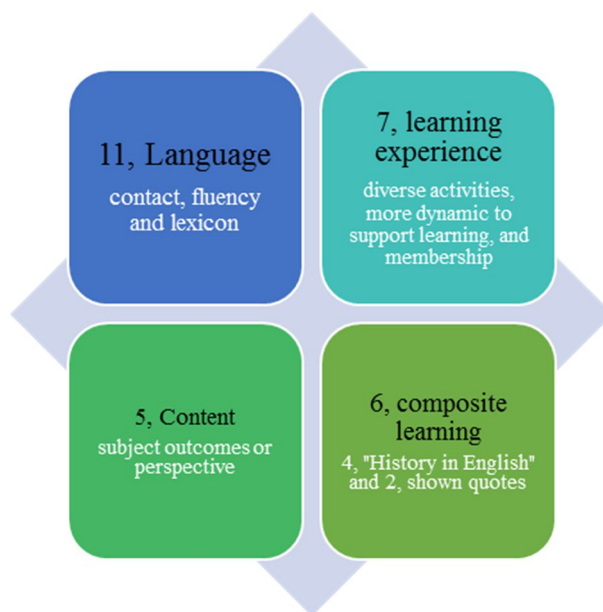


Figure 1: Student Opinion on the EP-History Project (numbers represent occurrences).

Language improvement is unquestioned for students: most of them feel they are more fluent and they possess an enhanced lexicon in English, due to increased contact with the language through the programme. Improvement linked to History is mainly associated to better marks. A deep idea of what Integrated Learning may mean is present in: fs Sci\_7, [...] *project*

*enables students to focus not just on English but also on History [...] using the language like that [...] not only the learning of terms [...] we start internalising the language and using it more easily [...] giving to the [specific] subject a more original shape [...]; and sHum-10, [...] it helped a lot with the language we did not learn just English in the subject of English [...] which is basically numbers verbs [...] we learn about a different History [...] we don't really have this variety in the subject of History [...].*

That is, the learning of both becomes authentic, English is learnt naturally and History is somehow expanded, beyond just “learning History in English” (as pointed by two other students). Furthermore, a greater diversity of activities for the learning of subject content (other *methods* and *learnings*, *different and diverse*, some students said) has been reported, which were more dynamic and became increasingly more cognitively demanding. A great sense of students’ responsibility and membership is revealed in sSci-2’s words: *because we had History in English [...] in this school [...] we were pioneers [...] it also gave us responsibility [...] even outside the project there was this [intense] relationship with our teachers [...] in every activity [...] during that [project] time [...] we were all working for the same [goal].*

### Perspectives on the Teaching Experienced in Content Classes

Students were asked *Do you think there was any difference between classes taught by the History and English teachers together* (co-teaching; see section 3) *and classes taught only by the History teacher* (single-teaching; see section 3)? (Q4). We encouraged them to talk about the roles of teachers during the co-taught History EP classes or to describe classes led by only the History teacher, rather than to relate a possible difference in the English proficiency of the two teachers. Answers are summarised in Figure 2.



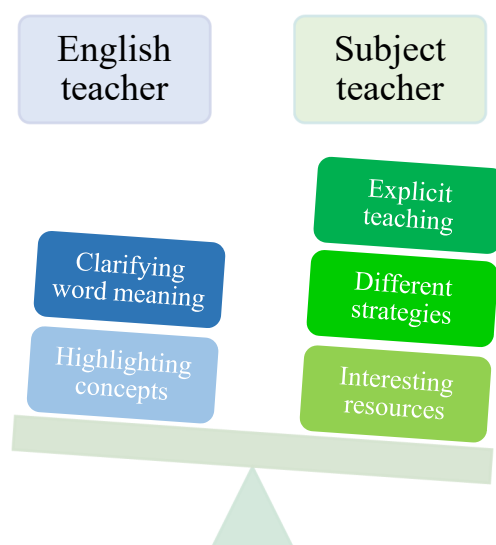


Figure 2: Roles of Teachers in Subject Classes, based on the former EP students' experience; the leaning scale serves to highlight the pivotal practices of the specific discipline teacher, as explained in the text.

With regard to features of the project lessons, as well as the role of teachers involved in them, their voices indicate that interesting and interactive classes have been co-planned and performed, capturing the students' attention and making them focused on learning, and effectively supported by explicit input. Some students state that they have learned better and enjoyed the History classes in English more than the ones in Portuguese: sEcn-5, *[during classes in English we used] Internet and the smart board and in Portuguese it was with textbook and worksheets to fill in by hand [...] because they are conventional classes*; sEcn-8, *[History classes in English and all their activities] helped me to learn [...] sometimes I enjoyed studying History in English even more than [...] in Portuguese because [...] it worked better and I managed to recall and learn it better [...]*.

Talking more specifically about the History teacher, students report her open-mindedness in learning/developing new teaching strategies and clear verbal input. This has played a pivotal role (emphasised by the scale of Figure 2 leaning to the right), even during single-taught classes and despite not being proficient in English. Actually, she also went through a learning process (*[...] teacher had to do some research to give classes to us [...] stories on Internet [...] words she didn't know and new sheets she had never seen before [...]*, sEcn-5) and had some difficulty with

the language herself ([...] *she was [...] more expressive in speaking English [...] in spite of having some difficulties with the language [...] she ended up saying things maybe with a simpler vocabulary but we understood better [...]*, sHum-10).

Hence, the Content teaching, whether through co-teaching or individual teaching, has resulted in the development of alternative resources (compared with the conventional classes, according to sEcn-5) and effective strategies (as evidenced by the positive effects on learning mentioned by sEcn-8, for instance). Moreover, a more explicit teaching through language support and greater interaction has been provided, in order to overcome the learner’s difficulties ([...] *in English we had more support [...] to understand better [...] than in Portuguese because we understood normally and naturally*, sSci-7), difficulties also experienced by the teacher (as commented by sHum-10).

#### 4.2. Learning through EP-Science for Current Students

##### The Project, its Importance, Benefits and Constraints

Students answered Q18.1 (*Justify why you consider the “English Plus” project in Science (not) important*) and Q20/21 (*In your opinion, what are the advantage(s) / disadvantage(s) of this Project?*). Categories resulting from coding student answers about importance (Q18.1) and advantages (Q20) are the same (Figure 3<sup>8</sup>): A) composite learning (“learning aspects” associated to both Science and English are mentioned); B) language sphere (enhancement in the English language or relevance of it); C) future implications (references to future possibilities of study or job); D) general learning (improved and/or broadened knowledge).

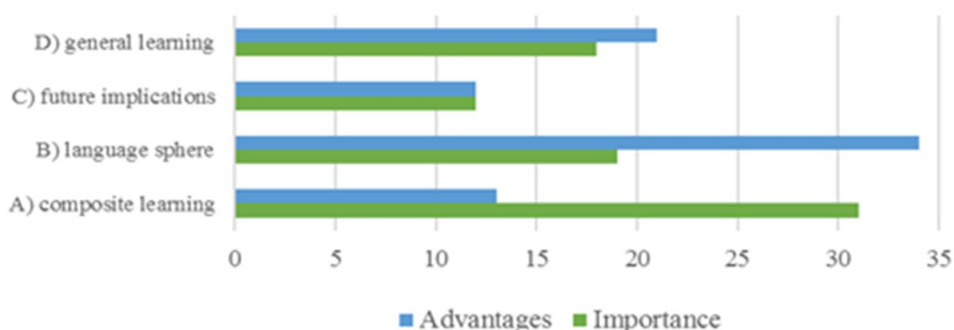


Figure 3: The EP-Science Project and its importance (Q18.1) and advantages (Q20); values on the horizontal axis indicate number of students.

The main advantage for students attending the Science EP project, especially for ones who have already had one year's experience with it (data not shown), is achievements in the language sphere, B); one may consider that language proficiency and vocabulary increase are not difficult processes/abilities to self-assess. It is followed by the advantage offered by developing one's own broader knowledge, D), not specifically referred to as scientific knowledge. A similar level of importance, then, is attributed to the learning of the language, B), and learning in general, D). The field related to future studies and job, C), is definitively more important for 8<sup>th</sup> than for 7<sup>th</sup> graders (data not shown), probably because of a tendency to be thinking concretely about their future. The "composite learning" category constitutes the most reported reason for the importance of the project and will be discussed in the following section.

As for difficulties (Q21), students seldom refer to language understanding as an obstacle, even though the older students are more aware of it (data not shown). In fact, they do not seem to identify many disadvantages in the project (more than half of students do not answer), with the exception of the extra dedication required (around 13%). A small percentage of students (around 7%) are also concerned about negative effects on the assessment.

### The Combined Learning of Science and English

In the specific case of "composite learning" – the A) field emerging from student answers to both Q18.1 (importance) and Q20 (advantages) in Figure 3 – absolute occurrences of sub-codes (a. learning Science in English; b. scientific English mastery; c. greater learning of both; d. learning Science together with English; e. increased vocabulary of both; f. improvement of Science learning and English vocabulary; g. improvement of Science vocabulary and English proficiency) are plotted in a column chart (Figure 4) to represent aspects of learning associated to both the foreign language and the specific subject, in students' perceptions. To clarify further, the statements coded as c. report the learning of Science and of English as improved (*it helps us to reinforce knowledge both in English and Science*, for instance), whereas those coded as d. Science and English learnt as one (*like that we reconcile two disciplines and turn them into just one*, for instance).

Unlike the previous figures, data are visualised separately for the two grades of students, as there are noticeable differences.

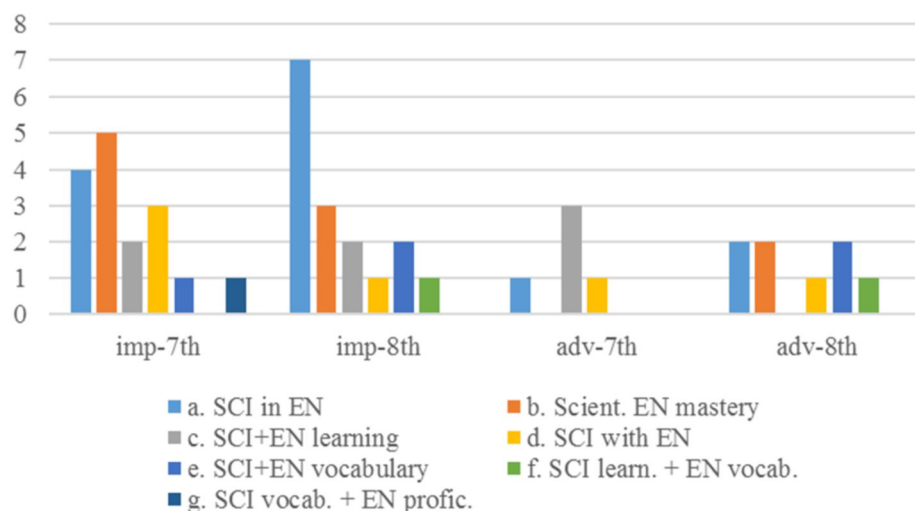


Figure 4: Learning aspects including both Science and English; abbreviations in the key summarise the full description of sub-codes with corresponding letters in the text; values on the vertical axis indicate number of students.

The distribution of importance basically covers all achievements/competences, but the younger students attribute a similar level to the acquisition of scientific terms in English and to the learning of Science in English, whereas for the older ones the EP project is important mainly because they are learning Science in English. Students who still do not know the project effects (7<sup>th</sup> vs 8<sup>th</sup>) can easily imagine its contribution to an increased knowledge in the subject and in the language but could not perceive any advantage for vocabulary.

With a view to extracting conceptualizations of Integrated Learning from students' perspectives, the results shown in Figure 4 (sub-codes of "composite learning", Importance and Advantages for 7<sup>th</sup> and 8<sup>th</sup> graders) have been merged and drawn in Figure 5.

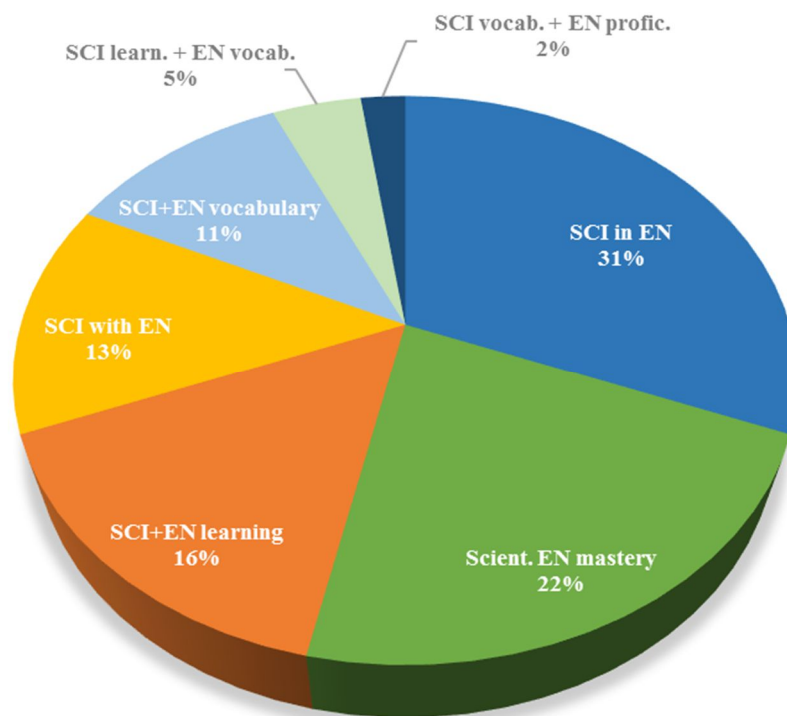


Figure 5: A) Composite learning, possible associations and relative percentages.

The exploration of possible associations reveals that students acknowledge that the CLIL-type EP provision implies the learning of both Content (Science) and Language (English), this category being the most represented one, at least in terms of importance (see A) in Figure 3). However, more than half of the answers convey the learning of Science in English and the acquisition of scientific terms in English. So, the idea that being taught through CLIL could entail learning one discipline just speaking another language is – notable.

### 5. Considerations

According to students' perspectives, it becomes clear how engaging them as members of the project and providing a different learning experience – activities and methods offered by the CLIL-type “English Plus” project – develop quality teaching that motivates and supports learners. Content (History, for former students, and Science, for current ones) is rarely indicated as improved through project attendance, at least in itself. On the other hand, improvement in English

is a given for EP former and current learners. Here we are reminded that CLIL was developed in Europe as a strategy for language promotion (Marsh, “CLIL/EMILE – The European Dimension”).

It is worth considering former students’ point of view regarding the Integrated Learning implied/implicit in the approach: the foreign or additional language is learnt in more authentic settings and the subject-specific education is improved. This is in line with the study of Grandinetti, Langellotti, and Ting on CLIL and Science education, and the idea that “CLIL is one pedagogical way”<sup>9</sup> to improve practices (one vision “materialised” in the 2018 Working CLIL Colloquium in Porto). Moreover, the voices of current students contribute to the understanding of conceptions on the integration of Content and Language through a diversity of combinations: “Science merely translated into English”, increasing Science lexicon and English vocabulary but also “learning Science interwoven with English”, which draws attention to CLIL as a range of educational practices and settings aiming at the learning of both Language and Content, in agreement with Coyle, Hood and Marsh.

The exposure to a different and effective teaching method (explicit, interactive, not conventional, etc.) is a crucial positive outcome of our study. Quality teacher practices are often detected in CLIL environments (Marsh, “Content and Language Integrated Learning. A Development Trajectory”) as a consequence of the challenge of working in an additional language. This may make the (subject) teacher adopt a more language-aware attitude in general (Coyle, Hood and Marsh; Wolff), clarifying meanings and ensuring students understand, and developing a more relaxed relationship with them (Blanchard, Masserot and Holbrook 81). In other words, a teacher may become open to the students’ (language) learning difficulties and to adapting and changing strategies and resources in order to support/scaffold the “new” learning conditions. As Canet Pladevall and Evnitskaya state, it is a “constant process of rethinking the way one teaches” (176), Science and other content topics. The importance for teachers of assuming and developing a language focus in Science education has been noted in previous studies within CLIL (Piacentini, Simões and Vieira, “The Language Focus of Science Education Integrated with English Learning”).

Although significant difficulties connected with this CLIL-type approach are not apparent here, students with some experience with the EP programme have provided, in other contexts within this project, suggestions to their teachers for improving (subject and language) lessons, mostly in terms of content scaffolding and representation (Piacentini, Simões and Vieira, “Holistic Approach in the Portuguese Education System to Develop Literacies of Science Integrated with English”). Further research is necessary to develop a characterization of the EP teachers, who learn throughout the project implementation and from student feedback. The perspective of students with different levels of experience and of learning through CLIL, as portrayed in this work, is indeed a fundamental issue for teachers to understand what strategies are meaningful and effective in general and to orientate teaching in the specific settings of CLIL practice.

## Notes

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<sup>2</sup> Because of the increasing migratory phenomena, several European countries witness classes where conversational and academic competence levels in the schooling language [BICS (Basic Interpersonal Communication Skills) and CALP (Cognitive Academic Language Proficiency), cf. Cummins, 1987] among learners are heterogeneous.

<sup>3</sup> For further information see [www.dge.mec.pt/programa-escolas-bilinguesbilingual-schools-programme](http://www.dge.mec.pt/programa-escolas-bilinguesbilingual-schools-programme).

<sup>4</sup> Complete data are in the process of being analysed and will be presented in future works.

<sup>5</sup> For the complete version of the questionnaire see <http://goo.gl/forms/ls5tXdzQNC>.

<sup>6</sup> The whole interview guide is comprised of the following questions: **1.** *Gostaria que expressasses a tua opinião sobre o projeto “English Plus” de História [organização, constrangimentos, desafios, vantagens].* **2.** *Tiveste dificuldades durante o projeto? Se sim, quais? Como conseguiste superá-las?* **3.** *Qual a disciplina que mais beneficiou (em termos de estruturação e compreensão, possibilidades de comunicação, integração com a realidade) com o projeto? Porquê? E agora que estás no secundário?* **4.** *Achas que havia diferença entre as aulas em que a professora de História e a professora de Inglês estavam juntas e as aulas em que havia só a de História (maneira da professora apresentar e tratar a disciplina de História)?* **5.** *Lembras de alguma situação em que o facto de utilizar o Inglês facilitou a aprendizagem com respeito ao uso do Português?* **6.** *Gostavas de conhecer ou conheces outras línguas? Quais?* **7.** *Achas que o Inglês (o facto de aprender/usar esta língua) despertou-te a vontade de estudar/aprender outras línguas e culturas? De que maneira?* **8.** *Consideras que o projeto trouxe algumas facilidades no estudo das disciplinas científicas? Se sim, como?* **9.** *Quais as sugestões aos alunos do 3.º ciclo que estão agora envolvidos no “English Plus” de Ciências Naturais?*

<sup>7</sup> Questions asked to students and responses are typed in italic and have been translated from Portuguese by the researcher.

<sup>8</sup> Total does not equal 96 (44 7<sup>th</sup> graders + 52 8<sup>th</sup> graders), some answers not having been considered (idiosyncratic, unclear, etc.).

<sup>9</sup> Stated by Golubeva in the “Working CLIL into the future – 10 visions” final session of the *Working CLIL Colloquium* (16<sup>th</sup> and 17<sup>th</sup> of March 2018, Faculty of Humanities, University of Porto).



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