

## The use of the L1 in a CLIL lesson in Secondary Education in Galicia

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**Abstract.** During the last decades, many steps have been taken towards the promotion of plurilingualism in Galicia. One of the most widespread initiatives undertaken in this autonomous community is the creation of bilingual sections and plurilingual educational institutions network in 2010 in Early Stages, Primary and Secondary Education across the autonomous community. As a unifying element, they follow the CLIL (Content and Language Integrated Learning) methodology: a non-linguistic content subject is taught in a foreign language. However, the language of instruction is not the only one used in these lessons; the L1 is sometimes present in CLIL. Despite previous misconceptions on whether using the L1 in foreign language lessons would be counterproductive, research has proved that CLIL may benefit from a certain coexistence of both languages (Méndez García & Pavón Vázquez, 2012). Contrary to the idea of L1 usage due to poor language proficiency, the appearance of both languages in students' and CLIL teachers' speech may point to a deeper understanding of both languages. In our discussion of this topic we will refer the concept of 'translanguaging', which can be useful to understand the use of different languages in the Galician CLIL sections. Therefore, this study endeavours to analyse the use of the L1 (Spanish-Galician) and L2 (English) as a code-switching practice in a CLIL Secondary Education context. Within this framework, Bloom's taxonomy of HOTS (Higher Order Thinking Skills) and LOTS (Lower Order Thinking Skills) (Bloom, 1956) will be accounted in order to assess the type of spoken productions and how code-switching is influenced by said thinking skills.

**Keywords:** CLIL, L1, Translanguaging, Code-switching, Secondary Education, Bloom's Taxonomy.

### [es] El uso de la L1 en una unidad AICLE en Educación Secundaria en Galicia

**Resumen.** En las últimas décadas se han tomado muchas medidas para promocionar el plurilingüismo en Galicia. Una de las iniciativas más extendidas llevada a cabo en esta comunidad autónoma es la creación de las secciones bilingües y la red de instituciones educativas plurilingües desde 2010 en Educación Infantil, Educación Primaria y Secundaria. Como elemento unificador, estas secciones siguen la metodología AICLE (Aprendizaje Integrado de Contenidos y Lenguas Extranjeras): una materia no lingüística se enseña en una lengua extranjera. Sin embargo, la lengua de instrucción (L2) es la única utilizada en estas clases; la lengua materna (L1) está a veces presente en AICLE. A pesar de la idea equivocada de que utilizar la L1 en la clase de lengua extranjera sería contraproducente, estudios han demostrado que AICLE se puede beneficiar de una cierta coexistencia de ambas lenguas (Méndez García & Pavón Vázquez, 2012). Contraria a la idea de que el uso de la L1 se debe a un dominio pobre de la lengua, la aparición de ambas lenguas en el habla de los alumnos y del profesor AICLE apuntan a un conocimiento más profundo de ambas lenguas. En nuestro debate sobre este tema, nos referiremos al concepto de 'translanguaging', que puede ser útil para entender el uso de diferentes lenguas en las secciones AICLE gallegas. Por lo tanto, este estudio trata de analizar el uso de la L1 (castellano-gallego) y la L2 como práctica de code-switching en un contexto educativo de secundaria AICLE. Dentro del marco teórico, se considerará la taxonomía de Bloom de HOTS (Higher Order Thinking Skills) y LOTS (Lower Order Thinking Skills) (Bloom, 1956) para evaluar el tipo de producciones orales y como el code-switching está influenciado por dichas habilidades de pensamiento.

**Palabras clave:** AICLE, L1, Translanguaging, code-switching, Educación Secundaria, Taxonomía de Bloom.

### [fr] L'Usage de la L1 dans une unité EMILE dans l'enseignement secondaire en Galice

**Résumé.** Tout au long des dernières décennies, des mesures pour la promotion du plurilinguisme ont été prises en Galice. L'une des initiatives les plus répandues dans cette communauté autonome est la création de sections bilingues et du réseau d'établissements scolaires plurilingues depuis 2010 pour l'Enseignement Maternel, l'Enseignement Primaire et l'Enseignement Secondaire. En tant qu'élément unificateur, ces sections suivent la méthode EMILE (Enseignement de Matières par Intégration d'une Langue Etrangère): une matière non linguistique est enseignée en langue étrangère. Pourtant, la langue d'instruction n'est pas la seule utilisée lors de ces cours : la L1 est parfois aussi présente dans les cours EMILE. Malgré la fausse idée que l'usage de la L1 en cours de langues étrangères est contre-productif, des études ont montré qu'EMILE peut tirer profit d'une certaine coexistence des deux langues (Méndez García & Pavón Vázquez, 2012). Face à l'idée que l'usage de la L1 est à cause d'une faible maîtrise de la langue, l'apparition des deux langues en cours peut montrer une connaissance plus profonde des langues de la part des élèves et du professeur EMILE, ce qui peut être intéressant pour comprendre l'usage des différentes langues dans les sections EMILE en Galice. Par conséquent, cette étude a pour

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objet d'analyser l'usage de la L1 (espagnol-galicien) et de l'anglais comme pratique de code-switching lors d'un contexte éducatif de l'enseignement secondaire EMILE. Dans le cadre théorique, nous considérons la taxonomie de Bloom de HOTS (Higher Order Thinking Skills) et LOTS (Lower Order Thinking Skills) (Bloom, 1956), pour évaluer le type de productions orales et comme le code-switching est influencé par lesdites habiletés de pensée.

**Mots-clés:** EMILE, L1, *Translanguaging*, *code-switching*, L'enseignement secondaire, Taxonomie de Bloom.

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## 1. INTRODUCTION

In the autonomous community of Galicia, the promotion of plurilingualism from educational administration is a relatively new issue. Less than ten years ago, in 2011, the *Xunta de Galicia* created the new network of plurilingual institutions which resulted into the regulation of these institutions and teacher training programmes in specific methodologies for the integration on language and content. In comparison to other regions in Europe -which had already been effectively using foreign languages for content instruction even before the publication of the *Common European Framework for Languages* (2001)- the implementation of CLIL in Galicia has still a long way to go. Within this context, this article presents an analysis of the use of the L1 (Spanish-Galician) in a CLIL classroom in Secondary Education, stating that it can help the teaching and learning process particularly in these early stages of the programme implementation. The research questions proposed for this project are related to how and why the use of the L1 or code-switching practices are present in a Physics and Chemistry CLIL secondary classroom. We also analyse the relationship between code switching and the development of the thinking skills, which are an important element in CLIL unit planning. For this purpose, 10 sessions (one didactic unit) of Physics and Chemistry for 2<sup>nd</sup> Year of Secondary Education (ESO in Spanish) were recorded and later transcribed and analysed.

## 2. LITERATURE REVIEW

### 2.1. Plurilingual Policies in Galicia

In the last two decades the Galician sociolinguistic context has been defined by a governmental positive attitude towards plurilingualism. Since the Spanish Constitution (1978), Galician was considered an official language in the autonomous community; thus, language policies in Galicia took a turn towards official bilingualism. This language-friendly attitude has resulted in several measures related to language protection (DOGA, 1983) and plurilingualism (DOGA, 2010). The legal framework presents and encourages a situation of balanced bilingualism (del Valle, 2000) among Spanish and Galician: '[i]n this framework, Galicia is conceived as a community with two co-official languages in which individuals may freely use either language in any domain' (2000, p.109).

Nevertheless, it must be pointed out that the linguistic reality is influenced by elements other than the language policies. Del Valle (2000) mentions differences between *language policies* and *language planning* in contrast to *linguistic culture*: language attitudes and language perceptions among Galician people bring into question the sustainability of the equal bilingualism the autonomous government endeavours to promote. In a recent study whose aim was to study the language attitudes in Galician youth, it was discovered that this demographic group was aware of the danger Galician was in and were concerned about its survival, but they admitted there was a lack of commitment to improve its situation (*Consello da Cultura Galega*, 2017). Taking as a starting point the idea that young people are the rightful heirs to the language, this panorama may seem disheartening. However, it must be pointed out the heterogeneity of opinions and attitudes regarding language influenced by factors such as contextual environment: youth in rural areas and pro-Galician cities (e.g. Santiago and Vigo) are more likely to speak Galician than their city-inhabitant counterparts.

It is significant to mention the usual code-switching practice in Galician people between the two official languages, Spanish and Galician, as a daily occurrence due to the specific bilingual context. Plurilingualism has not been promoted for a long time and students have not had a constant CLIL experience from primary education onwards, hence, the use of the L1 in CLIL may make students be more confident as well as facilitating the use of the foreign language and fulfilling the main aim of the most recent plurilingual plan in the region, called *Edulingüe 2020*, that is, to develop the plurilingual competence.

Despite the sociolinguistic concerns on Galician, foreign language has been implemented at school level in the traditional language as well as in the so called ‘bilingual sections’, which follow the CLIL approach. Even though pilot projects in secondary schools had been implemented in this autonomous community since 1999 (San Isidro, 2010), these became a fixed entity of the educational context with their legal regulation in 2011 (DOGA, 2011). This order defines the bilingual sections in the following terms:

A bilingual section is the teaching organisation of a non-linguistic area or subject of primary, secondary, upper secondary or specific vocational training education to be taught on a level to a group of students in a bilingual way using a CLIL approach: in the corresponding co-official language following the current regulation and in a foreign language spoken in the EU which is imparted as area or subject to said students’ group [authors’ translation] (2011, 10349).

Bearing in mind the rising interest in foreign language and communication skills –influenced to a great extent by professional competitiveness in our globalised society–, these bilingual sections have become widespread in Spain and Galicia up to the point that 4,145 bilingual sections are accounted in the academic year 2017-2018 and 322 schools are categorised under the plurilingual centre label in the Galician territory (Villar, 2017). These numbers comply with the *Edulíngüe Plan 2020* which endeavours to (1) provide plurilingual education to all students from mandatory education, (2) prepare secondary and upper-secondary schoolers to get a B1 or B2 certificate respectively, and (3) implement these sections in all educational levels (from early stages to vocational training and upper-Secondary Education) by the year 2020.

Although these plurilingual initiatives have their origins a few decades back, it is important to highlight the newness of its long scale spreading to all types of educational centres. Furthermore, the recent changes in education due to the new education law (BOE, 2013) have brought new realities such as new subjects being implemented in academic levels differing from those in the previous law (e.g. Physics and Chemistry in 2º ESO). This has resulted in a refashioning process of many bilingual sections and plurilingual centres. It should be considered that the use of a language of instruction such as English (a foreign language) would lead to a long adaptation process if students (and teachers) were not used to this methodology previously.

## 2.2. What is CLIL?

According to Coyle et al. (2010) CLIL must not be confused with a new methodology to teach languages or to teach subjects: “It is an innovative fusion of both [...] CLIL set out to capture and articulate that not only was there a high degree of similarity in educational methodologies, but also an equally high degree of educational success” (pp. 1-3). Therefore, CLIL is not taken as pedagogical unique, but as historically unique in Europe (Cenoz et al., 2014). Nevertheless, the term as it is understood today was coined by Marsh in 1994 and is nowadays understood as “a dual-focused educational approach in which an additional language is used for the learning and teaching of content and language with the objective of promoting both content and language mastery to predefined levels” (Marsh et al., 2011, p. 11).

However, some further thought has been given to the language in CLIL, thus, dividing this into categories: content-obligatory language (e.g. vocabulary) and content-compatible language (e.g. use of conditionals to hypothesise). According to Coyle et al. (2010), these sequences of language cater to the interrelationship of content objectives and language objectives; this is further contextualised in the Language Triptych:

- Language of learning: related to the specific language of the subject and topic. It endeavours to shift “linguistic progression from a dependency on grammatical levels of difficulty towards functional and notional levels of difficulty demanded by the content” (2010, 37).
- Language for learning: type of language necessary to manage oneself in a foreign language environment. It should be planned in advance by the teacher to attend the course’s linguistic needs (e.g. describing, evaluating, etc.).
- Language through learning: based on the idea that “effective learning cannot take place without active involvement of language and thinking” (2010, 37). It bears in mind the progression (and need) of language at par with the development of students’ cognitive skills, that is, it captures “language as it is needed by individual learners during the learning process” (2010, 38).

It goes without saying that the type of language input and output would vary depending on several factors such as the type of task, subject and aims. Taking as a starting point the fact that cognitive thinking skills are closely related to academic functions of language, Dalton-Puffer (2007, 129) points out some major academic language functions which may be present in the CLIL classroom’s speech such as ‘analysing’, ‘classifying’, ‘comparing’, ‘evaluating’ etc. According to this author:

Academic language functions can best be understood as a special case of the general communicative functions of language. Communicative functions are commonly seen as a) being tied to certain social and interactive situations and b) performing an important part in the functioning of language as a social tool (2007, 128).

It has to be mentioned that academic language functions are not solely found in academic contexts, but they could be also found in non-academic contexts (e.g. describing). This may lead to believe that constant contact with different academic functions in non-academic contexts might help students, but it should be accounted that while cognitive aspects of these functions might be reinforced, linguistic issues related to these functions are not met. Therefore, some further thought needs to be given to the relationship between cognitive functions and linguistic issues in a somewhat explicit manner.

According to Cumming's (1999), there are two categories concerning language and its cognitive demands: Basic Interpersonal Communicative Skills (BICs onwards) and Cognitive Language Academy Proficiency (CALP onwards). Initially, this distinction drew attention to the type of language and the idea that "all individual differences in language proficiency could be accounted for by just one underlying factor, which he termed *global language proficiency*" (Cummins, 1999, 2). BICs are related to contextual factors while CALP is said to focus on Academic Language Proficiency, thus, making a distinction between overall fluency and academic- focused language: "BICs (Basic Interpersonal Communication skills) is context embedded, cognitively undemanding use of a language. Language that is cognitively and academically more advanced (CALP) fits into the fourth quadrant [of Cummins's continuum dimensions] (context reduced and cognitively demanding)" (Baker, 2006, 140).

### 2.3. Bloom's taxonomy of thinking skills

In order to present and classify the cognitive processes used in learning, Bloom (1956) created what is nowadays known as Bloom's taxonomy of learning. It should be accounted Bloom's division of different types of thinking has been revisited in the last years and the Knowledge Dimension has been added by Anderson & Krathwohl (2001). However, the cognitive process dimension is the only one to be considered in this article due to the aims of the study. This dimension is subdivided into what is nowadays known as HOTS (Higher Order Thinking Skills) and LOTS (Low Order Thinking Skills), both are necessary to effective learning. These divisions refer to the level of cognitive difficulty related to the thinking processes and it can be appreciated in language productions such as students' speech.

These divisions of HOTS and LOTS present a guided progression in terms of cognitive demanding functions from less challenging (e.g. recognising) to more challenging processes (e.g. critiquing). This accounts for the fact that:

Two of the most important educational goals are to promote retention and to promote transfer [...] Retention is the ability to remember material at some later time in much the same way as it was presented during instruction. Transfer is the ability to use what was learned to solve new problems, to answer new questions, or to facilitate learning new subject matter [...] In short, retention requires that students remember what they have learned, whereas transfer requires students not only to remember but also to make sense and be able to use what they have learned (Anderson & Krathwhol, 2001, 63).

These two distinctions comply to some extent with the division of Bloom's taxonomy into LOTS (mostly retention) and HOTS (majorly transfer):

Table 1. Bloom's Cognitive Process Dimensions. Adapted from Anderson & Krathwhol (2001) and Coyle et al. (2010)

LOTS (Low Order Thinking Skills)		HOTS (High Order Thinking Skills)	
Remembering	Using information from long-term memory: – Recognising – Recalling	Analysing	Breaking the material into parts and explaining how these are related to each other: – Differentiating – Organising – Attributing
Understanding	Building up meaning from instructional messages: – Interpreting – Exemplifying – Classifying – Summarising – Inferring – Comparing – Explaining	Evaluating	Making critical judgements: – Checking – Critiquing
Applying	Carrying out a procedure: – Executing – Implementing	Creating	Constructing something new using and putting together elements. – Generating – Planning – Producing



It has to be mentioned that “[i]n the CLIL classroom it is unlikely that the language level of the learners will be the same as their cognitive level” (Coyle, Hood & Marsh, 2010, 43). Furthermore, it has been brought to attention the significance of STT (Student Talking Time) in their learning process: ‘In research on pupils learning languages, it was noted that children’s early language development takes place very largely through talk’ (Bentley, 2007, 130). In addition, STT and TTT (Teacher Talking Time) should be understood within the time and students’ previous experience with CLIL. It is to be expected that the TTT in CLIL sections in their early stages would be more frequent than STT due to (1) the teacher’s need to provide more input to low level students (e.g. students in the first cycle of Secondary Education), and (2) a possible lack of students’ FL language fluency which may lead to some unwillingness to engage with the FL in the classroom discourse. Therefore, students’ linguistic repertoire may not be at par with the cognitive demands of the CLIL curriculum; this may lead to a void in students’ speech which may be solved by the use of the L1 in some cases.

## 2.4. Code-switching and translanguaging

In this discussion the concept of ‘translanguaging’ has become the key element to support the use of the L1 along the FL in the classroom, understanding this as “the integrated conceptual/linguistic system through which plurilingual individuals process and use language, with the social reality of different languages” (Cummins, 2016, 9). Taking into account the plurilingual nature of the autonomous community, this concept may be useful to understand the use of different languages in the Galician CLIL sections. On the other hand, it is relevant for the CLIL teacher since it helps them “to have an overall understanding of translanguaging, not only as a pedagogic strategy to support learning but also as a feature of natural bilingual discourse, which they and their students can employ according to the situational demands” (Nikula & Moore, 2016, 245).

This is closely related to the linguistic concept of ‘code-switching’ which started to be studied as a usual bilingual practice in 1980’s (Poplack, 1980, Gumperz, 1982, Myers-Scotton, 1983) in contrast to its previous pejorative connotation: “It is also striking that precisely those switch types which have traditionally been considered most deviant by investigators and educators, those which occur within a single sentence, are the ones which require the most skill” (Poplack, 1980, 615). Thus, code-switching is to be found in what Poplack (1980) understands as ‘true’ bilinguals, that is, speakers who learned both languages in early childhood.

If we understand code-switching as “the juxtaposition within the same speech exchange of passages of speech belonging to two different grammatical systems or subsystems” (Gumperz, 1982, 59), it cannot go unnoticed that code-switching could be easily found in the Galician territory with the usual mixing of Galician and Spanish (Diz Ferreira, 2017). It is important to bear this in mind so to understand students’ and teacher’s predisposition towards code-switching in their MT, also considering that “code-switching is to a bilingual speaker what style-shifting is to a monolingual” (Romaine, 2009, 170).

Despite the fact that code-switching instances are quite varied based on the language and the situation (e.g. social) among other aspects, Poplack (1980) distinguishes three different types of code-switching according to structural switches:

1. Tag-switching: insertion of a tag in one language into an utterance which is otherwise entirely in the other language: *¿Te gusta Laura? No way!* [You like Laura? No way!].
2. Intersentential code-switching: switch at a clause or a sentence boundary, each clause or sentence is in one language or another: *Tráeme el beaker* [Bring me the beaker].
3. Intrasentential switching: the switch occurs within the clause or sentence boundary. It is the most complex syntactically and only the most fluent bilinguals are able to perform it: *Es un gamer, pero no tiene idea at all* [He’s a gamer, but he hasn’t got any idea at all].

Although the study of code-switching has had its beginnings in case studies with ‘true’ bilingual speakers (bilingual speakers from birth), it has been accounted that code-switching also occurs in other languages rather than the MT. In the last decades foreign language (FL) learning has been established in European education as a mandatory subject in most European countries; thus, increasing the number of speakers who speak their MT and a FL (at least). Therefore, studies on code-switching practices (Macaro, 2001; Gené et al., 2012; Méndez & Pavón, 2012) have been increasing in numbers to explain the new linguistic reality in FL classrooms. This has led to an adaptation on how code-switching is understood and why code-switching is present in this context. In this line, Gené et al. (2012) follow Chavez (2003) division in regards the function of the L1 in the EFL classroom: pedagogical functions and real functions. The former option answers to an already planned use of the language (e.g. oral practice) while the latter “serve a purpose which has observable and often immediate consequences, that is, they serve true communicative needs” (Chavez, 2003, 169). Furthermore, Gierlinger (2007) points out CLIL teachers in lower Secondary Education use the L1 to avoid misunderstandings, to use it as a priming device, to give instructions or a summary of the main points and for disciplinary measures.

In regards to the reasons behind code-switching practice in second language classrooms, Abdollahi et al. (2015, 850-851) summarise the literature of this topic into five major reasons:

4. Linguistic insecurity (e.g. difficulties in teaching new concepts).
5. Topic switch especially in grammar instructions, preferably in students' MT.
6. Affective functions and spontaneous expression of emotions.
7. Socialising by using the L1 to signal friendship and solidarity.
8. Repeating and conveying the same message in both languages for clarity.

According to the literature on the topic, code-switching is found to occur for a reason in the repertoire of bilingual speakers, were they to be native bilinguals or in-classroom bilinguals. Due to CLIL's dual nature (content and language) and the heterogeneity of CLIL practices, it is significant to study the use of the MT and the FL in these CLIL sections so to understand how translanguaging in CLIL may be proof of language proficiency in both languages rather than linguistic deficiency in the language of instruction.

## 2.5. Attitudes towards the use of the L1 in the CLIL classroom

Despite previous misconceptions on whether using the L1 in foreign language lessons would be counterproductive, research has proven that CLIL may benefit from a certain coexistence of both languages (Méndez García & Pavón Vázquez, 2012). Contrary to the idea of L1 usage due to poor language proficiency, the appearance of both languages in students' and CLIL teachers' speech may point to a deeper understanding of both languages. Besides, "studies seem to confirm that L1 use decreases at the same time as L2 proficiency increases" (Lasagabaster, 2013, 4). The concept of 'translanguaging' has become a key element to support the use of the L1 along the CLIL classroom. The concept of translanguaging is related to the concept of codeswitching, but if the latter is a more planned practise, translanguaging is understood as a more spontaneous one (Nikula & Moore, 2016). On the contrary, in the foreign language classroom the trend has been to avoid the use of the L1 as a reaction against traditional methodologies. Nevertheless, Lasagabaster (2013) acknowledges that "in the 1990s there was a shift in the pendulum and more importance was once again attached to the mother tongue in the foreign language classroom" and that current "practices such as codeswitching and translanguaging are still controversial" (3). On the one hand, the use of the L1 can help students feel safer in a foreign language learning environment; on the other, there is still a fear that the L1 might interfere with the L2.

In CLIL, with a dual focus on content and language, the use of the L1 is not such a controversial topic. Code-switching practices broadly defined as "the use of two or more linguistic varieties within the same conversation" (Myers-Scott, 1983, 121) have proven to be effective both for teachers and students. Studies carried out in bilingual and multilingual communities have shown that codeswitching is a highly structured practice. According to Wei (2010) its effectiveness in the classroom can also be proved "Bilingual and multilingual children learn the rules of codeswitching from a very young age, and are capable of assessing the appropriate language choice of the situation, the topic and the language preference of the listener" (399).

The use of the L1 in the CLIL classroom becomes relevant as a scaffolding strategy to support complex issues. Lasagabaster (2013) argues that it is important that teachers become aware of their codeswitching practices "to reflect on the reasons for their choices" (17). But in order to be effective, it must be pedagogically planned "if judicious, can serve to scaffold language and content learning in CLIL contexts, as long as learning is maintained primarily through the L2" (18). Hence, CLIL teachers' speech may point to a deeper understanding of both languages.

## 2.6. The language of Science in CLIL

In our study of code switching practices, it can also help understanding the nature of the language used in this particular area of knowledge, since it can give clues on the need to reinforce curricular contents with the L1, depending on the complexity of the language needed. The particular language of Science would be related to what Coyle et al. (2010) refer to in their Language Tryptich as the "language of learning", meaning the vocabulary and structures related to the topic. According to Dale and Tanner (2010), the language for Science is used to describe, explain and analyse scientific phenomena. When learning about Science, students develop all the thinking skills mentioned above, as well as reasoning, questioning, creative problem-solving and evaluating. According to Dale & Tanner (2010, 80-81), the language of Science has the following traits:

1. It recounts, which means that it retells events in a chronological order. It uses past and present tenses (water evaporates), organising words (first, second), and very often the passive voice is used.
2. It describes phenomena using very often present tenses.
3. It instructs. Particularly during experiments using imperatives, question forms to clarify understanding (*Do I have to pour the water first?*).
4. It explains cause and effect (*As it dissolves, the colour changes*).
5. It predicts and hypothesises with simple future clauses: *the water will take longer to boil*.
6. It uses a lot of figures, symbols and abbreviations with few or no words.
7. It uses abbreviations and symbols derived from Latin (Pb for lead) and many technical terms which are Greek and Latin-based works: *hydrochloric acid, dissolve, solution, energy, atom....*

As it can be observed, Science as subject in Secondary Education has many advantages from the linguistic point of view. It uses many repetitive structures that come out throughout the teaching and learning process. Very often graphics and figures are used to illustrate theories. Finally, there is a large amount of Latin and Greek based lexicon which implies the presence of many cognates between English and Spanish, which of course helps CLIL student better understand the concepts.

### 3. RESEARCH QUESTIONS

As it has been previously mentioned, translanguaging refers to the systematic purposeful shift between different languages in the classroom. Similarly, code-switching is the juxtaposition of two codes into the same speech passage. Due to the purpose of this study, the term code-switching is specifically related to linguistic issues, as explained in MacSwan (2017): “Codeswitching research usefully informs bilingual education theory and practice, especially with regard to views about the linguistic resources that bilingual children bring with them to school” (170). On the other hand, translanguaging is more concerned with a didactic uptake.

Having said that, the main aim of this study is to analyse the use of the L1-L2 (Spanish-Galician) as a code-switching practice in a CLIL Secondary Education context following Bloom’s taxonomy (HOTS & LOTS) and Poplack’s (1980) typology of code-switching.

In order to do so, the study endeavours to answer the following research questions:

- What functions does code-switching have in the CLIL classroom?
- Is there a relationship between code-switching and HOTS and LOTS?

These questions endeavour to provide information regarding the code-switching and translanguaging practice in a Galician high-school context. The final goal of this study was to analyse students’ and teacher’s interaction in CLIL lessons, in order to understand the didactic purpose of code-switching.

## 4. METHOD

### 4.1. Participants

This study was carried out in a Galician plurilingual State high-school in an urban environment in which Spanish is the most common L1. The overall number of students is over 400 between secondary and upper Secondary Education. This study focuses on one group of 2° ESO students (N=28) and their teacher (N=1) in their CLIL Physics and Chemistry classroom. Concerning their plurilingual learning, this is their second year following the CLIL methodology; hence, it could be said that the use of English in a non-linguistic subject is fairly new to them. On the other hand, the teacher has been teaching content through English for seven years, he has a B2 level of English certified by Cambridge and has attended a 10-hour CLIL training course. These data are to be accounted within the concluding remarks of the study.

### 4.2. Instruments

The data tools gathered in this study are the lesson transcripts for a total of these ten sessions, which were audio recorded and transcribed. Therefore, other instances of code-switching which may have been found outside classroom time are not considered in the analysis due to their small occurrence and their non-academic nature. An anonymous questionnaire was also answered by the students. This questionnaire was designed in Spanish to facilitate students’ understanding of the items. Different types of questions/items were used in the questionnaire so to gather specific information on the participants. Different items were used such as multiple-choice questions, closed-ended questions; yes/no questions and Lickert scale items. The questionnaire was validated by five experts in the field of bilingual educations and changes were incorporated in the final version.

### 4.3. Procedure

The data of this study is based on in-classroom speech from the studied group during the Physics and Chemistry lessons. The questionnaire was provided to the students at the beginning of the study. The observation of the classroom was carried out during the completion of a didactic unit.

## 5. RESULTS

The analysis focuses on the code-switching and translanguaging instances from the CLIL teacher and students’ speech where the main code-switched languages are English and Spanish (only one instance of English-Galician was found on the teacher’s speech: *Funnel, like Galician funnel*).

### 5.1. Students' foreign language training background and their perceptions of CLIL methodology

Before the actual observation and data-collection of in-class code-switching instances, a questionnaire was completed by the students with regards to their. This information becomes relevant since these factors can reflect on the students' performance in the foreign language. The intended outcome of this questionnaire was to gather necessary information to later contextualize students' attitude towards their CLIL learning experience. Through the questionnaire it was concluded that the students' levels of confidence when speaking in English was actually very positive: 50,9% of participants stated they were somewhat confident in their spoken English, followed by those who felt a slight bit confident (20,8%), very confident (15,1%) and no confident at all (13,2%). Overall, these figures bode well on students' confidence speaking English, though it must not be forgotten these are students' own perceptions. Nevertheless, this general self-perception is relevant because it does have an effect of their initiative towards using the language. As it could be observed, despite the fact that only 5,7% (N=3) of the students who completed the questionnaire had attended a CLIL-based bilingual group in Primary Education, they still showed a positive attitude towards using the L2 during the lessons. On the basis of the answers that the students provided in the questionnaire, it was also found that 7 students started to learn English in Pre-school, and 21 in the first year of Primary school.

### 5.2. What functions does code switching have in the CLIL classroom?

As it can be implied from the analysis of the teacher's speech, CALPs are the main skills addressed in this CLIL classroom when there were curricular related utterances produced by the teacher. For Basic Interpersonal Communication (BICS), code-switching is mostly used by the teacher to encourage students both for positive performance in any given tasks as well as for using English. Therefore, the affective factor can be observed in the teacher's confirmation throughout the use of the L1 that the student has received the positive message.

Regarding the production of students' utterances, BICs are mostly used for socializing and for talking about homework or exams, which apparently might be easier for them since they had more experience practicing in their second language lessons. Furthermore, students tend to use English more with CALPs, which might seem more complicated for them at first glance.

In both the teacher's and the students' results there is a tendency towards using the L2 more when developing CALPS and when dealing with the *Language of Learning* and *Language for Learning*. The reason might lay in nature of the language of Science discussed earlier (Dale & Tanner, 2010): it uses many repetitive structures that come out throughout the teaching and learning process that students hear from the teacher a reproduced in contextualised activities; and also the large amount of Latin and Greek based lexicon helps the students' understanding and usage of the second language.

In the same line as Abdollahi et al. (2015) pointed out, the teacher actually uses code-switching for affective reasons. The teacher also switches codes to create a positive environment or to deal with classroom management issues. In the case of the students in this CLIL classroom, the L1 is used exclusively for socialising. Furthermore, the instances when they use the L1 when dealing with specific content for the unit seem to be more related to the fear of speaking in public than with linguistic insecurity, as concluded from the fact that they try to use more the L2 when they are working in activities.

### 5.3. Is there a relationship between code-switching and HOTS and LOTS?

In regard to the teacher's use of the L1, most of the teacher's code-switching excerpts are to be categorised within Bloom's LOTS, specifically when it comes to compare elements (e.g. *There's a difference between agua pura en sentido químico y agua mineral*) and explain concepts or ideas (e.g. *In Spanish and Galician it is the same: insoluble/soluble*). Due to the fact that the teacher's use of the L1 is to repeat an explanation previously done in English or to tell off students because of their bad behaviour, it is not surprising that most of his code-switching was intersentential code-switching, that is, the switch is present outside the boundaries of the clause: *Ok, crystals are the solids; we're talking about solutions. ¿Entendéis esto? Con sustancias puras no queda nada detrás* (HOTS: checking, or LOTS: explaining). Intrasentential switching is present in his speech when he compares how to say the word in English and in Galician (e.g. *Funnel, like Galician funil*) with a clear didactic purpose. The repetitive function alluded to before would relate to code-switching in curricular related issues. It is also interesting the teacher used code-switching to encourage students (87%). In all of the cases it was tag switching (*Very well done, muy bien!*), the teacher's purpose was to give positive reinforcement. The use of the students' L1 is used here by the teacher to create a supporting language environment in the classroom.

The analysis of the students' code-switching practice has been more challenging as more variety in terms of classification has been found. First of all, it should be accounted that students' use of the L1 and English in code-switching excerpts occurs when they are (1) talking to the teacher and (2) working in groups. This is significant as it could have been argued that students use the L1 with their peers to avoid the difficulties the language of instruction may bring. Overall, some results have been reached:



1. HOTS and LOTS are found in equal measure in students' code-switching practices.
  - a) LOTS: Identifying (e. g. *¿Qué pone ahí?*), Applying (e. g. *¿Hay que dibujar los steps?*).
  - b) HOTS: Evaluating (e. g. *No tenemos la mix*), Creating (e. g. *¿Y que el condensador dé tantas vueltas tiene algo que ver?*).
2. Dual classification of some excerpts which could be considered HOTS and LOTS: *¿Puede ser chocolate powder en vez de chocolate?* In this case, the words 'chocolate powder' and 'chocolate' were pronounced using English so we could consider this sentence an intrasentential switching. This sentence could be understood as LOTS (applying) or HOTS (creating).
3. In regard to intrasentential, intersentential and tag switching, it is surprising that the majority of their switching was intrasentential, though the three typologies have been found in the case study:
  - a) Tag switching: *¡Oh yeah, qué guay!*
  - b) Intersentential switching: *Es que vi un experimento donde recogían agua de lluvia, se evaporaba y quedaban cosas* [adding information to a previous answer].
  - c) Intrasentential switching: (1) *Can you hacerlo más grande [digital board]?* (2) *¿Si hay un poco de iron aqui?* (3) *Le tenemos que meter water.*

After classifying and analysing these instances, it is important to go in further to understand why these excerpts of code-switching have led to a translanguaging practice in the observed classrooms.

It needs to be highlighted that the specific vocabulary and the cognates from the Physics and Chemistry subject are the elements which are presented mostly code-switched (e.g. students talk to each other in Spanish but say these concepts in English). Thus, non-specific language should be worked on to reinforce the use of structures to promote the communicative competence (not only specific vocabulary). This could be related to some extent to the non-continuous nature of CLIL in this case: this is only the second year students are part of the CLIL section and the first year they have Physics and Chemistry as a subject. Furthermore, as it has been pointed out, STT is lower in low academic levels which may have influenced the number of code-switching instances. Therefore, students may not feel comfortable with the language of instruction when it deviates from specific vocabulary which has been explicitly taught by the teacher: their possible insecurity when using non-academic language could be linked to possible unawareness of language proficiency. This is further proved by their correct and natural use of academic language in English. It is quite clear that the use of the L1 on the teacher's side answers to repeat and convey the same message in both languages for clarity and also to show some solidarity (e.g. *¿Entendéis esto?*) (Abdollahi et al., 2015). Therefore, code-switching bodes well for understanding and acknowledging students' issues with the content and language as the teacher uses the L1 with a clear didactic purpose.

In regards to students, it is surprising that intrasentential switching and HOTS are present to such extent in students' code-switching, especially considering that intrasentential switching is the most complex type of switching syntactically and only the most fluent bilinguals are able to perform it which leads to question whether students are more proficient in the language of instruction than what they think and let on. After analysing the code-switching, it could be reasoned that students mixed the L1 and English due to (1) linguistic insecurity, (2) spontaneous expression of emotions and (3) the socialising factor (using the L1 to signal friendship and solidarity).

Regarding Bloom's taxonomy, the L1 was mainly used by the teacher regarding LOTS (HOTS are developed in English), but students used L1 in both LOTS and HOTS. It is not surprising that students use the L1 in higher order thinking skill as STT is lower than the TTT due (to some extent) to the classroom profile: the teacher is the main speaker in his role as 'sage on the stage' and the formulaic nature of the subject may not allow for the development of all thinking skills. Therefore, these code-switching instances concerning HOTS should be allowed and encouraged with a dual didactic purpose: to develop HOTS in the CLIL classroom and to encourage translanguaging in CLIL.

## 6. DISCUSSION AND PEDAGOGICAL IMPLICATIONS

As it has been stated, during the last decades there have been some changes in the educational European panorama concerning FL learning with a strong emphasis on the communicative competence due, to some extent, to the globalised working market. These changes have led to a different conceptualisation of FL proficiency in terms of educational policies which have sought to establish a competitive FL curriculum outside the traditional FL courses. They had resulted in initiatives such as the bilingual sections being implemented in most European countries in all mandatory levels of public education (Eurydice, 2006, 2012, 2017). Due to the fact that bilingual sections introduce both language and content, the purpose of these sections is not as focused in language as in the traditional FL lessons; language is oftentimes used as a vehicle to the content (similarly to the Content Based Learning methodology) rather than as one of the two main pillars of the methodology.

From the analysis and results addressing these research questions in this particular context, several pedagogical implications can be withdrawn. First of all, if students feel more at ease to use the L2 during practical activities and when working in small groups, the teacher must carefully select the teaching approach he or she uses in class. A student-centred approach will ease the use of the L2. The use of code-switching practices on the student's side should

be understood as an effort to communicate in a language which is not their first language; therefore, the teacher's emphatic use of code-switching in this case is a positive resource, since it helps in creating a positive environment for the use of the L2.

The choice of the subjects to be taught through CLIL is relevant as well. Even though Physics and Chemistry might appear at first glance a complex subject to be taught through English because of the cognitive demands of the content introduced, it actually functions in the sense that students are able to understand and communicate in the L2 due to the nature of the language of Science. The choice of this particular subject lends itself very well to develop students' CALPs in English. Nevertheless, in order for students to use the L2, more practical activities should be introduced to allow for more STT: the more time students spend working in groups during activities, the more chances they will have to use the L2 or code-switching in order to develop BICs.

Concerning the aim of this article, it has been proved that code-switching happens in HOTS and LOTS in equal measure, though some of the studied code-switching lines could be classified in both groups. In regard to the types of code-switching (intrasentential, intersentential and tag switching), most of students' code-switching was intrasentential, though there were instances of the three types. It has been pointed out that these practices have a strong didactic purpose that addresses the idea that bilingual practices abound in CLIL classroom discourse and serve a variety of purposes.

However, it should be noted that translanguaging (or code-switching) in the CLIL classroom ought to be introduced with the utmost care. Having several languages in the classroom may be both beneficial and dangerous at the same time: the CLIL teacher must be aware that the MT in the CLIL lesson would always be a tool to achieve the main communicative goal, that is, to communicate using the FL and that MT usage should be focused on didactic issues (e.g. introduction of content-specific language) and to promote FL acquisition (e.g. comparisons between the FL and the MT in some specific matters). In the same line, students should understand that the use of the MT is not an end, but a means to an end (FL communication). Students should not be led to believe that MT usage in the classroom is a common practice, but they should be allowed to use it when necessary so to avoid possible CLIL-related negative perceptions (e.g. students feel they are not able to express themselves in English without help).

## 7. FINAL CONSIDERATIONS

As it has been previously mentioned, CLIL in the Galician context should be understood within the sociolinguistic panorama and considering the somewhat recent implementation of CLIL in this autonomous community. Before this study, no studies on CLIL code-switching in plurilingual centres have been carried out so far in Galicia. Therefore, research on code-switching and HOTS and LOTS may add on the cognitive implications of CLIL in order to improve the CLIL experience and to understand the cognitive challenges which may arise in the CLIL lessons.

The use of the L1 helps the teaching and learning process, particularly in the Galician context, where the implementation of plurilingual policies is quite recent. In these early stages of CLIL, a predesigned use of the L1, one on the teacher's part and a choice of language use on the student's part where they do not feel overstressed will actually help the teaching and learning process. However, further research needs to be carried out so to understand the code-switching and translanguaging phenomenon in Galicia. Other contexts such as bilingual high schools or primary schools may shed some light on translanguaging. Moreover, further research may show some significant implications due to the bilingual nature of the autonomous community. Taking into account that the so-called 'millennial' generation states to have a higher language level than their older counterparts and a high number of them point out they will be the first generation to speak English with their children (Cambridge Monitor, 2015), it may be interesting to study whether this affects students' level of proficiency and code-switching in a FL becomes a natural process in the coming years.

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