INTED 2022

16th International Technology, Education and Development Conference

7-8 March, 2022

CONFERENCE PROCEEDINGS

Sharing the Passion for Learning

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Table of Contents

MATHEMATICS THROUGH CLIL: A COMPREHENSIVE LITERATURE REVIEW AND A DIDACTIC PROPOSAL TO INTRODUCE CLIL IN AN ECUADORIAN MONOLINGUAL SCHOOL

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Abstract

Content and Language Integrated Learning (CLIL) as a new educational model aspiring to improve foreign language competencies involves overcoming several barriers to achieve significant learning outcomes in both language and contents. Based on this premise, the main purpose of this paper is to analyse the different components involved in this innovative process and to determine the impact of CLIL on science, particularly on mathematics learning, and its effectiveness, comprising each aspect required in order to successfully fulfil the CLIL criteria and the curricular objectives of the subject.

The implications of teaching mathematics through CLIL are studied by means of an extensive literature review, starting from the general features of CLIL and the context of mathematics teaching in mainstream education. Bearing in mind these general notions, an exhaustive analysis of mathematics teaching by using English as the vehicular language is carried out taking into account pivotal aspects such as the importance of the language of instruction, the development of communication skills, the role of scaffolding to attain the expected learning outcomes, methodologies, materials and ICT, challenges, engagement, and the impact of learning mathematics through a second language.

Furthermore, the parameters required to design a practical and effectual lesson plan are established and exemplified on how to introduce CLIL in a specific context (Compulsory Secondary Education) at an Ecuadorian monolingual school ("San Felipe Neri", in Riobamba), adapting CLIL to the background of the target group (tenth grade in Ecuador, equivalent to the third level of CSE in Spain) by using student-centred methodologies as well as the support of ICT.

Both the literature review and the lesson plan implementation will allow us to draw a number of conclusions which may prove of use for educators in similar educational contexts and/or for teachers from a different background who may consider these ideas of interest for their own teaching-learning processes. In fact, due to the current lack of materials (especially in the case of subjects such as mathematics and of certain countries), it may also be possible to benefit from them by adapting the activities included in the above-mentioned lesson plan to any teacher's own context.

Keywords: CLIL, mathematics, Compulsory Secondary Education, Ecuadorian monolingual school, lesson plan.

1 INTRODUCTION

Currently, the world is undergoing radical and swift changes that demand to establish an endless communication network that can eliminate language barriers; thus, speaking different languages has become an urgent need to adapt to a growing globalised and technological community [1]. Learning a second language (henceforth, L2), particularly English, has become a communication skill necessary to actively take part in a society open to multiple cultures. As Roberts *et al.* [2] point out, "monolingualism is the illiteracy of the twenty-first century" (p. 116).

In light of this situation, CLIL appears as an innovative approach which "[…] is something more than an educational need" (p. 27) [3]; it aims to cross language barriers and make knowledge universal. The essence of CLIL focuses on teaching non-linguistic subjects through a non-native language (henceforth, NNL) whereby learners can simultaneously acquire language and content competences in a real context. Nevertheless, this ambitious goal entails a lot of effort, competences, and teaching training taking into account that accomplishing the effective learning of a subject in a foreign language (henceforth, FL) requires concrete actions, pedagogical strategies, and methodologies so that students can learn content knowledge at the same or even at a higher level than they do in their mother tongue (henceforth, MT), but acquiring FL skills in unison.

Given the importance of CLIL as a new educational model focused on both content and language learning, this study analyses the impact of CLIL on mathematics learning and its effectiveness comprising each aspect required in order to successfully fulfil the CLIL criteria and the curricular objectives of the subject. Guaranteeing content understanding stands as a daunting challenge for teachers considering the implications of the vehicular language, and even more with respect to the evident complexity of mathematics teaching.

As an initial stage, the main theoretical aspects of CLIL are summarised, since it is crucial to know the bases of this approach and, subsequently, to evaluate its pragmatic application. In addition, important notions of mathematics teaching in traditional education are analysed as a starting point to determine the curricular implications of the contents, possible difficulties, and methodologies to apply. Next, there is a compilation of data from an extensive literature review as a way to study the features of teaching mathematics by means of CLIL and its effects on content knowledge as well as on language skills.

Finally, a CLIL lesson plan is proposed based on the theoretical review conducted, aiming at inserting a CLIL unit in the tenth grade of Compulsory Secondary Education (henceforth, CSE) (equivalent to the third level of CSE in Spain) at “San Felipe Neri” school, an Ecuadorian monolingual public school in Riobamba with a low socio-economic status (henceforth, SES), bearing in mind its specific teaching context, language skills, and the expected learning outcomes, thus catering to diversity in CLIL as per the difficulties found in the target group.

2 METHODOLOGY

The present study was carried out in order to analyse the context, to identify the mathematics teaching and learning needs related to a CLIL approach, and, as a result, to finally design a CLIL lesson plan adapted to the context in CSE at “San Felipe Neri” school (Riobamba, Ecuador). By means of this, it was possible to determine the characteristics and requirements of the CLIL mathematics classroom, to assess the communication skills used, to compare mathematics teaching in bilingual education to conventional education, to review methodologies and materials employed in mathematics teaching through CLIL, and to analyse the effects of learning mathematics by using English as a medium of instruction (henceforth, EMI) in CSE encompassing an extensive literature review by virtue of theoretical, qualitative, and secondary research.

2.1 Data compilation and analysis

A vast compilation of qualitative data has been extracted from different academic sources such as books, journals, and papers focusing on the theoretical underpinnings of CLIL and teaching mathematics as a curricular subject in mainstream education. Therefore, it is thus possible to estimate, on the one hand, the foundations of CLIL as a content-based language approach and, on the other, the framework of mathematics teaching as well as a brief study of the Ecuadorian mathematics curriculum in CSE.

It was also imperative to ascertain the underlying principles to tackle mathematics teaching through EMI, reflecting upon the basic criteria that should be considered with a view to guarantee an effective assimilation of both mathematical content and the target language. Given that CLIL is still regarded as new and quite unknown in Ecuador, there is little or no research into CLIL in an Ecuadorian context. For this reason, the literature review is mainly based on European studies.

2.2 Didactic proposal and target group

After having conducted the above-mentioned review of CLIL mathematics teaching, it was crucial to design a CLIL lesson plan in order to apply the theoretical foundations analysed to a real context, such as an Ecuadorian monolingual public school.

“San Felipe Neri” school is a public educational institution located in an urban area on Saint Amand Montrond Avenue and Manuel Quirola Street in Riobamba, Ecuador. There are 860 students and 38 teachers, and, compared to other public schools in Riobamba, it is a small school. Despite being urban, most students in this institution come from rural zones. Their parents are mainly farmers or retailers with low incomes, and some have even immigrated to the United States illegally. A few students live in precarious conditions, a fact that has sometimes affected their academic achievement due to the lack of school supplies or having to help their parents work instead of fulfilling their assignments.

The target group is the tenth grade of CSE (the counterpart of the third grade of CSE in Spain). In this group, there are 25 students (12 boys and 13 girls), who are 14-15 years old. Their academic

performance in mathematics and English is worrying since they are not attaining the expected learning outcomes in both subjects according to the qualitative and quantitative data from the formative and summative assessment carried out in the first term of the 2019-2020 school year.

In Ecuador, it is possible to find a small number of bilingual programmes in private schools. However, Ecuadorian public education is completely monolingual. Thus, the goal of planning CLIL maths lessons for "San Felipe Neri" school is totally experimental for currently there are no legal regulations for bilingual education. Under these circumstances, the lesson plan was designed following the guidelines of the mathematics and English as a Foreign Language (henceforth, EFL) curricula for CSE attending to the background of this group.

3 RESULTS

CLIL as a bilingual approach aims to enter general education as a successful way to acquire a L2 by learning non-linguistic subjects. However, it involves many more factors to contemplate before implementing an educational programme than in standard approaches. CLIL encompasses content-based instruction (henceforth, CBI) and language teaching, but without putting more pressure on one or the other [4], consequently, pursuing significant learning outcomes alike. These facts led to delineate the groundwork of CLIL and its influence on mathematics teaching with the purpose of designing a lesson plan adapted to a particular context.

3.1 CLIL

First and foremost, CLIL has emerged as an innovative approach focused on both contents and languages working in "a joint curricular role" (p. 58) [5] in which both factors do not compete with each other, but rather complement each other. As a result, thinking about the key to success is reflecting on the learning results obtained from studying the contents and a FL synchronously [4]. CLIL programmes have evolved positively since they adapt to the students' context and needs. By means of this new approach, students have the opportunity to become the builders of their knowledge fostering learning autonomy and, at the same time, cooperative learning.

Learning a subject through a FL entails a cognitive challenge for both teachers and learners and, similarly to other approaches, there are both assets and drawbacks. Coyle *et al.* [4] highlight "a learner's cognitive development" (p. 24) as the main advantage of CLIL whereby students can acquire an ability to think in other languages regardless of their extent. However, this goal can be attained as long as teachers make methods more suitable for teaching contents in a NNL. CLIL, due to its duality, not only fosters linguistic competences, but favours cultural development and strengthens cognitive processes as well [4]. Besides, CLIL assets are undeniable since both teachers and students benefit from it.

On the other hand, Šulistová [6] similarly mentions some negative facts of CLIL influence, which mainly revolve around the following four aspects: time consumption, level of FL required from both students and teachers, unfamiliarity with CLIL theoretical underpinnings, and insufficient teacher training courses.

3.2 Mathematics in mainstream education

Mathematics learning may become a complex process if students' learning styles and needs are not taken into account before planning a lesson. A recurrent mistake is to believe that all students learn at the same pace, which could be the reason why some students feel frustration and aversion to mathematics. Students' dissatisfaction stands out as a real problem that needs to be solved urgently, especially considering that this subject is present in every daily aspect. Edwards [7] believes that mathematics is closely linked to the daily context in which people live. Therefore, mathematical operations are meaningful since there is a reason for them to exist based on the needs that arise even in simple everyday situations. The context necessary for learning mathematics is life in its entirety.

François and Van Bendegem [8] express the importance of significant learning in mathematics teaching, so that learners can understand the functional use of the subject and the commonalities with day-to-day events. Maths contents should be seen as something positive for life rather than as a compulsory subject to be passed by following difficult procedures and formulas. The instruction setting and the connections linked to the subject make its learning easier by focusing on real aspects.

3.2.1 Student motivation/frustration

Students are naturally curious and intuitively motivated to learn something new every day. Sorensen [9] claims that every student is motivated; nonetheless, students are not always motivated to do what teachers want. Teaching achievement is learning achievement that is determined by numerous factors, among which motivation stands out as one of the pivotal aspects conditioning maths learning [10].

Mathematics is a subject that demands a huge cognitive effort and, as a result, motivating students to learn it can sometimes be an arduous process when teachers do not apply suitable methodologies to engage students and give them the opportunities to participate actively. Education never stops and, undoubtedly, mathematics education is a continual process that aims for students to understand systematically and cognitively all the procedures, concepts, and mathematical abstractions [11]. On the contrary, students may feel frustrated, especially when they have to solve maths problems. Frustration is a negative emotion that directly affects the successful completion of a task [12].

Teachers should facilitate maths understanding in a natural environment showing that mathematics can be an enjoyable process by using appropriate methodologies, strategies, and resources. Moreover, mathematics teachers should expand students' confidence and motivation by encouraging them to delve into maths problems through thinking skills as if they were their own everyday problems [11].

3.3 Mathematics teaching through EMI

Mathematics teaching in mainstream education proves to be a real challenge itself, and, even more, having to do so by using English as the vehicular language. English is the preferred FL used in CLIL [13]. In addition, it must be considered that mathematics may not be the favourite subject taught in CLIL due to the very nature of its contents.

The imposition of learning mathematics in a NNL can turn out to be intimidating for students taking into account that the language of instruction conditions content understanding at all educational levels [14]. Hence, students have to receive constant linguistic support not only to boost the linguistic competence, but also to ensure a complete understanding of the mathematical content since "CLIL is a dual-focused approach" (p. 89) [15]. For this reason, the expected learning outcomes centre on learning content knowledge and acquiring linguistic competences in the target language, but without affecting the MT.

3.3.1 Relationship between mathematics and the language of instruction

Learning a FL is in fact a hard task; consequently, studying core subjects in a FL is even more difficult [16]. Changing the language of instruction entails ensuring that content subject benefits from it [17] and, specifically regarding maths contents, it is essential to manage a clear perspective on how to efficiently integrate both language and content. Needless to say, in CLIL mathematics, teachers should demonstrate at least competent language skills in order to communicate in both conversational and academic contexts. In fact, in many countries, educational authorities state the minimum proficiency level in a given FL required by teachers to work in bilingual schools.

Mathematics is a language in essence that has to be decoded by learners in order to get an absolute or relative understanding of the topics [18]. However, most of the times, students' unwillingness to learn hampers this decoding and they end up doing it intuitively and without a real understanding of the concepts. Given that in CLIL learning is by means of a L2, more cognitive skills than in the L1 are required. As a consequence, this approach has to expose "a different perspective in Mathematics, allowing for deeper insight and understanding" (p. 24) [17] and engaging students.

Using a L2 as the means of communication in the classroom helps students gain a practical point of view on contents and language, creating opportunities to learn vocabulary linked to academic and cultural contexts, and developing language skills in terms of formulas, calculations, systematization, etc. Moreover, the use of a different language requires the application of dynamic methodologies to promote an ongoing, effective, and active approach that generates a better understanding [17].

3.3.2 Communication skills and scaffolding

In mathematics teaching in CLIL, it is necessary to focus largely on the communicative skills described by Cummins [19], namely Basic Interpersonal Communicative Skills (BICS) and Cognitive Academic Language Proficiency (CALP). While BICS refer to the daily, familiar language used in conversational contexts, CALP are the language skills needed to perform successfully in academic settings.

Bentley [20] comments on that Cummins and other scholars established a minimum period of five years to successfully develop and reach CALP, considering the cognitive effort required to perform effectively in academic contexts. Enhancing CALP through mathematics is still more demanding and challenging for both teachers and students because of the natural complexity of maths settings. Therefore, CLIL should encourage students to thoroughly analyse them as well as their labels and names in the language of instruction to attempt a deeper comprehension and concurrently academic vocabulary learning [17].

The development of CALP skills remarks the influential role of scaffolding, which is temporary assistance in the teaching-learning process (henceforth, TLP) based on continual interactions among teachers and peers. This process leads students to move forward to the successful completion of learning tasks. The application of productive scaffolding strategies calls for teachers to identify learning needs and potential in order to determine what each student can accomplish both independently and with guidance [21]. Concerning mathematics teaching through EMI, scaffolding focuses on the language skills needed to communicate and understand maths contents successfully. Some techniques include modelling, vital vocabulary, visual aids and realia, suggestion of sentence starters, activation of prior knowledge, and employment of ICT [22].

3.3.3 Materials and ICT

The need for CLIL materials represents a decisive factor to succeed in CLIL. The language of instruction is not only a mere communicative tool, but also part of the expected learning goals. Using EMI supposes a noticeable change in the TLP, since each strategy and technique applied should focus on exposure to language and the accomplishment of the curricular content criteria [23].

Given the shortage of specialised CLIL materials, content teachers can opt for creating original ones or adapting resources originally designed for native speakers of that L2 and, even though this process may be time-consuming, teachers can obtain experience acquiring strong abilities to adapt materials from the internet and/or textbooks [24]. Bentley [20] states that some ways to do this task are by translating, including visual aids, diagrams, additional definitions and short explanations, as well as by labelling and highlighting key content and vocabulary.

Furthermore, the integration of technology and CLIL has become a requirement to create a more dynamic and effective learning atmosphere. Mathematics teaching (either in mainstream education or in CLIL programmes) requires support from ICT. Rahman *et al.* [25] underline that technology reduces time consumption while provides learners with powerful opportunities and tactics to enquire into theories and concepts, obtaining higher levels of knowledge. The use of virtual tools is a positive and fruitful way to engage and motivate pupils in CLIL lessons where they can actively partake in a net of collaborative projects under teachers' guidance and support [26].

3.3.4 Effects of EMI on learning mathematics

The language of instruction used in mathematics is a matter of concern since a low language proficiency can affect the understanding of the maths contents and, as a result, academic performance [27]. Learning maths contents at the same time as English is a double cognitive challenge for pupils and, given the natural complexity of mathematics in the L1, maths teaching in bilingual education might be detrimental in terms of content knowledge if it is not properly managed. Moreover, there has been strong criticism of CLIL since bilingual programmes detractors claim that students learn neither content subjects nor English [28]. However, the success of CLIL may vary according to how CLIL programmes are implemented and to whether these meet the necessary criteria or not.

Pérez Cañado [29] states that, according to evidence, CLIL appears to have a positive influence on mathematical achievement. Thus, it is possible to deny that CLIL negatively affects content learning. In a like manner, Husarida and Dollete [30] underscore that EMI can encourage students to enrich both their academic performance in mathematics and language skills. Nevertheless, a sudden change of the language of instruction can cause unfamiliarity to prior knowledge, slow down mathematics learning, and even induce a cultural shock.

The perspective of CLIL is wide and, undoubtedly, it is an approach that has rocketed in European bilingual education. Both the advantages and disadvantages of CLIL have been questioned and its effectiveness continues being controversial, but it certainly fosters a real environment to acquire a L2 through content learning. Maths is a demanding subject in all languages and, if the vehicular language is English or any FL, the challenge is definitely more difficult. Notwithstanding, the effectiveness of CLIL depends on all the stakeholders involved in the TLPs and the correct performance of their roles.

3.4 Lesson plan

Unlike customary education (in which lessons focus chiefly on contents), in CLIL it is mandatory to have clear notions of the context and teaching goals of both contents and language. Needless to say, considering students' language proficiency before and while planning a lesson is paramount. Besides, the methodologies and strategies applied should be utterly opposite to those lecture-based ones.

The initial point to plan a lesson is to set learning outcomes based on students' prior knowledge, abilities, and awareness, bearing in mind the review of appropriate content material, vocabulary and activities, a language-rich environment, task design, and plenaries [20]. Correspondingly, the University of Cambridge [24] establishes some considerations to plan an effective CLIL maths lesson by activating prior knowledge, as well as using input and output, wait time, interactive pair or group work tasks, cognitive challenges, and development of thinking skills. These foundations have been applied to the design of a CLIL lesson plan in accordance with the context and needs of the intended group at "San Felipe Neri" School in Riobamba, Ecuador.

3.4.1 Contents

Considering that this lesson plan is experimental and that there is no Ecuadorian bilingual curriculum, the Ecuadorian CSE mathematics and EFL curricula were analysed in order to choose the adequate contents according to the students' prior schemata, competences, weaknesses, and strengths in both subjects.

Table 1: Mathematical and language contents for CLIL lesson plan [31,32].

Maths contents	***Language contents***
Linear equations Simultaneous equations	Vocabulary related to algebra: elimination method, equation, equals sign, formula, graphical method, like terms, simultaneous equations, substitution method, variable, etc. Reading comprehension of text problems. Oral production to describe procedures. Writing skills to describe maths relationships and procedures.

3.4.2 Teaching-learning methodologies

CLIL requires the application of student-centred methodologies in order to place learners as the main builders of their knowledge under teachers' guidance. Bearing in mind the target group's background, the appropriate methodologies to introduce CLIL in a monolingual environment are Flipped Classroom, Task-based Learning, and Cooperative Learning.

3.4.3 Attention to diversity

Catering to diversity involves guaranteeing quality education for everybody. Diversity is a concept inherent to society related to the mix of differences between human beings, such as age, gender, sexual diversity, religion, culture, and physical possibilities, but also about divergence in character, motivation, education level, disciplines, interests, and so on [33]. Teachers are responsible for adapting the learning environment, methodologies, resources, and strategies to the students' needs and background in order to procure significant learning for them despite any educational needs associated or not with disability.

In the context of the target group for this lesson plan, there are some behavioural, emotional, and social difficulties that should be handled carefully. Some students need more attention and help to focus on classes. Therefore, individual activities require more guidance and supervision for them. In addition, working groups need to be arranged according to each student's abilities in order to manage different profiles in each, so that cognitively stronger students can support their peers.

Given the low SES of some students, most of them do not have access to technology. In this way, it is necessary to exploit the computer lab available at school to enhance students' digital competences whereby they can benefit from a more dynamic and interactive TLP. Overall, all the students need strategies that help them increase self-esteem and confidence in subjects considered as difficult (namely, mathematics and EFL). For that reason, it is important to facilitate maths instruction taking into account the students' prior knowledge so that they can evolve and advance in learning by means of EMI (authentic use of language).

3.4.4 Sessions

The lesson plan is made up of eight sessions and each of them deals with a different specific topic.

Table 2: Account of the topics covered in each session [34].

Session	Topic
1	Introduction to equations
2	Linear equations
3	Linear equations II
4	Introduction to simultaneous equations
5	Simultaneous equations: graphical method
6	Simultaneous equations: elimination method
7	Simultaneous equations: substitution method
8	The equation of my life

Every session was planned considering aspects such as topic, time, aim, teaching objectives according to the 4Cs framework (content, cognition, culture, and communication) [4], learning outcomes for both content and language, procedure (time, activities, and materials/resources), and dual assessment focusing on content and language. The template below was used for this purpose.

Topic:		Time:
Aim:		
TEACHING OBJECTIVES		
Content	Cognition	Culture
Communication		
Language of learning	Language for learning	Language through learning
LEARNING OUTCOMES		
Content	Language	
PROCEDURE		
Time	Activities	Materials/ resources
ASSESSMENT		

Figure 1. Lesson plan template.

3.4.5 Materials

The didactic materials used in this CLIL maths lesson plan provide the target group with all the resources to perform successfully in mathematics learning through CLIL as well as to develop language skills. Given that the students of the tenth grade of CSE in “San Felipe Neri” school have never been exposed to any kind of CBI, these CLIL materials are aimed at their academic and personal context with respect to the 4Cs framework. For each session, several materials were designed or adapted, in addition to the support of ICT, that is focal, too.

Table 3: Type of materials and/or resources used in each session.

Session	Video	Worksheets	Learning platform	Other materials
1	☑	☑		☑
2	☑	☑	☑	☑
3		☑	☑	☑
4	☑	☑	☑	☑
5	☑	☑	☑	☑
6	☑		☑	
7	☑	☑		☑
8	☑		☑	☑

3.4.6 Assessment

Assessment stands out as a pivotal stage in education in order to know whether learning outcomes are being achieved or not. In CLIL, the question of assessing could be slightly complex given the duality of this approach, but a true fact is that content and language have to be assessed simultaneously and regarded as being of equal importance [24].

In this CLIL lesson plan, both formative and summative assessment are used to determine whether learners achieve the expected learning aims in accordance with the Ecuadorian curriculum. With regard to the former, communicative activities have been mostly developed putting aside the obsolete idea of assessing only through tests. Thus, each session mainly comprises formative assessment through performance assessment, so that learners can prove their content knowledge and language skills both independently and cooperatively [24]. As for the latter, at the end, summative assessment is utilized in order to examine the level of contents and language acquired after this CLIL experience.

4 CONCLUSIONS

CLIL is an innovative approach currently in vogue in Europe as a solution that can reduce the rates of monolingualism of a country as long as CLIL programmes are correctly implemented. However, there are some conflicts when applying CLIL in schools due to a number of reasons, such as the lack of well-qualified teachers and appropriate materials. CLIL does not only imply to teach a content subject and a L2 simultaneously, but goes far beyond that because of the implications of using fitting methodologies, materials, and resources. On the whole, apart from content and language, there are pedagogical aspects that have to be well-founded to succeed in this dual approach.

Many are the non-linguistic subjects that can be taught through CLIL. However, mathematics teaching in a L2 stands out as a real challenge considering that the subject itself is complex to assimilate even in the students' MT. There are several difficulties that CLIL teachers in charge of mathematics teaching have to face, such as the complexity of the subject, demotivation, apathy, and the perception of difficulty, just to mention some of them. Furthermore, dealing with a NNL demands more effort on the part of both teachers and students than in mainstream education, since CLIL learning outcomes have to be reflected on content and language all at once.

In CLIL, maths teachers have to create a pleasant and confident learning environment for changing the language of instruction may cause confusion, fear, and/or worry. Linguistic support and scaffolding should be constant, as some maths terms that are known in the MT may seem unknown in an additional language. Besides, most of those terms would be classified as advanced vocabulary in the L2.

The use of active methodologies is decisive. Therefore, each CLIL lesson should be planned placing learners at the forefront of the TLP. In a CLIL mathematical context, the implementation of definite methodologies and strategies should cover all the abstraction of the contents, thus fostering the application of skills such as problem-solving, critical thinking, creativity, reasoning, decision-making, etc. Equally, the language focus should always be present for students to see the L2 as the vehicle for learning and to benefit from it in order to acquire language skills through real interactions in both social and academic contexts.

Lesson planning should be carefully done allowing for the triangulation of content, language, and pedagogy. Teaching in mainstream education is different from bilingual education, so having to plan a

CLIL maths lesson in EMI is complex indeed, especially when there are plenty of challenges to overcome, such as the application of effective methodologies to favour both content and language or the deficiency of CLIL materials. CLIL is certainly time-consuming and quite laborious when there is little or no experience. Nevertheless, the mastery of its theoretical underpinnings as well as ongoing training can help practitioners perform successfully in the CLIL classroom.

The Ecuadorian Ministry of Education incorporated CLIL into the EFL curriculum as a language approach, but, after carrying out this research and planning CLIL maths lessons for CSE in a monolingual Ecuadorian school, it is evident that the potential of CLIL goes much beyond only focusing on language skills. CLIL offers multiple opportunities to transform education and leave behind the paradigms that made education be seen as a rigid, obsolete system. Through this CLIL lesson plan, it is expected that the intended group can benefit from CLIL and notice a real change in the way they learn a L2.In addition, attention to diversity is also taken into account in CLIL, thus proving that this approach is neither elitist nor selective [33].

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