

# Beyond Written-Linguistic Modes of Meanings: Multimodal Representations to Extend the Range of Literacy Learning in EMI Students

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**Abstract**—The adaptation to the European Higher Education Area (EHEA) has meant a change from teacher-centered to student-centered education. Since the Bologna process, Spanish universities have promoted active methodologies, emotional intelligence in the classroom, assessment by competencies, and teaching in English. Thus, English as a Medium of Instruction (EMI) courses have increased. This paper analyzes two EMI courses taught in Education degrees in a Spanish university, from the point of view of the teaching strategies that can ensure the content learning and the literacy development of mixed-language ability students through the systematic promotion of multimodal patterns of meaning. To do so, students' multimodal texts resulted from four class tasks were analyzed using a framework of interpretive strategies to assess to what extent they represented the meaning of the academic readings they were based on. The results of the descriptive analysis suggest that the promotion of multimodal meanings in the EMI classroom can extend the range of literacy learning and favor not only the development of linguistic skills but also digital, social, and cognitive skills likely to improve students' academic performance in the courses that they study in English. Moreover, this approach contributes to an improvement in students' degree of motivation.

**Index Terms**—English-medium instruction (EMI), multimodal meanings, higher education

## I. INTRODUCTION

As a result of the increased internationalization of Spanish universities, following the implementation of the European Higher Education Area (EHEA), the number of foreign language medium instruction programs, mainly in English, has steadily increased (Dafouz & Smit, 2020). In a context that fosters the use of student-centered methodologies and competency-based teaching and learning, English as Medium of Instruction (EMI) poses the challenge of how to support mixed-language ability students so as to guarantee successful content learning (Nieto-Moreno de Diezmas & Fernández-Barrera, 2021) and assessment (Otto & Estrada-Chichón, 2021).

In the case of teacher education, the need for an effective training in English has been further enhanced by the growth of bilingual education programs in primary and secondary schools across Europe, in general, and in Spain in particular (Pérez-Cañado, 2018). Such programs respond to an increased pressure on educational systems to provide more extensive and effective foreign language training (Eurydice, 2020), particularly in English, as the world's lingua franca.

In the Community of Madrid, which provides the setting for this study, around 50% of primary and secondary schools have implemented the bilingual (English) education program (Comunidad de Madrid, 2020), which is based on the Content and Language Integrated Learning (CLIL) approach. In this program, students learn not only English but also a number of subjects in English. Understandably, this scenario has placed increased pressure on initial teacher education programs, which must now prepare future students for the challenge of bilingual education (Gutiérrez-Gamboa & Custodio-Espinar, 2021). In general, universities have responded to this demand by increasing the credit load devoted to English as a foreign language (EFL) and, in about half of the existing primary education teacher training institutions, by offering partial EMI programs or streams (López-Hernández, 2021). However, no clear policy for entry levels has been arranged at university yet (Halbach et al., 2017), which results in students' difficulties in the foreign language (Pavón, 2018).

This paper describes an experience of effective development of content and language learning in two EMI courses taught as part of the teacher Education degrees at a Spanish university in Madrid. It offers examples of the effective development of students' linguistic and academic competences through the promotion of hands-on collaborative activities based on multimodal meanings that are supported by Information Communication Technologies (ICT). This study also hopes to contribute to the field of foreign language, EMI, and CLIL teaching at the tertiary level, by providing examples of how teachers can mediate students' understanding and processing of the content in mixed-language ability EMI contexts.

## II. THEORETICAL FRAMEWORK

The adaptation of higher education to the EHEA has promoted a change from the focus on transmission of knowledge to one in which professors are able to promote student competencies such as looking for complementary information to that provided in class, effectively communicating ideas to classmates or the teacher, selecting the best solution to the problems that arise, or assessing the technical, social and environmental consequences of the decision made (Zabalza, 2016). In order to face this context, since the Bologna process, Spanish universities have provided training actions in areas such as active methodologies, emotional intelligence in the classroom, assessment by competencies, or teaching in English (Torra-Bitlloch et al., 2012).

Turning to teacher education, among the key competences for lifelong learning promoted by the EU, the digital and technology-based competences should play a very important role in the education of future teachers (Pérez-Cañado, 2020). Technology, however, must be understood as a lever for educational change and not as a mere addition to the teaching process (Cabero-Almenara & Llorente-Cejudo, 2020). Indeed, if effectively used, ICT can result in strengthened scenarios for collaboration, interaction and building new ways of relating to reality in academic contexts.

EMI, CLIL, and English for Specific Purposes (ESP) are all different ways to teach disciplinary content in a foreign language in higher education. The common expectation of these forms of content-based language education is that “using the target language to teach and learn content creates authentic communicative contexts for the use of the target language and leads to a higher target language proficiency while simultaneously achieving content learning” (Lin, 2019, p. 5). In these learning contexts, as Tsuchiya (2019) suggests, “the practice of translanguaging is often observed” (p. 265). Lin (2019) goes a step forward from translanguaging, understood as the “multiple discursive practices in which bilinguals engage in order to make sense of their bilingual worlds” (García, 2009, p. 45), to transsemiotizing, “trans-semiotic system with many meaning-making signs, primarily linguistic ones that combine to make up a person’s semiotic repertoire” (García & Li, 2014, p. 42), considering them key factors in the dialogic construal of content meaning in content-based education.

However, the relationship between learning and development processes in bilingual education is complex because, while independent, they can influence each other. Indeed, learning does not necessarily lead to development; it may, eventually, promote learner’s development if the activities and scaffolding that teachers or peers provide (sharing goals, demonstrating, modelling, or breaking tasks into steps) help the learner to effectively perform at their particular Zone of Proximal Development (ZPD) (Vygotsky, 1978) in the EMI courses.

Stathopoulou (2015) also affirms that mediation not only serves in the building of relationships between students, but in facilitating the learning process. Thus, in any kind of content-based instruction such as EMI, mediation should involve the collaborative dialogue that helps students to build knowledge in the foreign language as language use mediates both content and language learning. In this educational scenario, transsemiotizing, as defined by Lin (2019), can play a key role in EMI students’ knowledge construction.

As the New London Group stated in 1996, the use of multiliteracies approaches to pedagogy will enable students to achieve two goals for literacy learning. The first one will allow students to access (1) the evolving language of work, in this case teaching, (2) the power of (bilingual and multilingual) education, and (3) a sense of community understood as Ikeda’s concept of “globalism” (2019, p. 24). The second goal is the development of critical engagement necessary for students to design their social futures and achieve success through fulfilling employment (Cazden et al., 1996).

Teacher education through EMI requires that learners are able to identify differences in patterns of meanings from many contexts: academic, linguistic, social, cultural and professional. Moreover, such patterns may be conveyed through a variety of channels: oral, visual, tactile, gestural, spatial, or audio. In this view of language from a social semiotic perspective (Lin, 2019), EMI instructors can help their students to develop a multimodal view of literacy likely to go beyond the traditional written-linguistic modes of meaning, which will ultimately have an effect both on themselves and on their future students.

Indeed, according to Kress (2010), “in a social-semiotic account of meaning, individuals, with their social theories, socially shaped, located in social environments, using socially made, culturally available resources, are agentive and generative in sign-making and communication” (p. 54). This multimodal account of meaning suggests that different students will combine different modes, which will have functions and relate in the text in a particular way to effectively convey the meaning required. Therefore, multimodality, understood as “the combination of different semiotic modes - for example, language and music - in a communicative artifact or event” (Van Leeuwen, 2005, p. 28) can be useful in EMI contexts to measure and evaluate different ways of meaning-making produced by students.

Moreover, as suggested by Zammit (2014), introducing the creation of multimodal texts mediated by technology, making use of a collaborative approach and formative assessment practices, can influence students’ outcomes related to learning of content, knowledge, skills, and level of engagement in learning. Arguably, bringing multimodal representations into the classroom - particularly those typical of digital media - can make literacy learning more engaging for students, as it becomes closer to what they experience in their daily lives. In addition, such a strategy contributes to providing students with a “CLIL-ed” form of EMI in which scaffolding and mediation play a crucial role in the support of content learning and the development of students’ language proficiency (Custodio-Espinar & López-Hernández, 2021; Ikeda, 2019; Pérez-Cañado, 2020).

### III. METHOD

#### A. Research Context and Participants

Comillas Pontifical University offers the EFL specialist itinerary to all students of its Education degrees. To complete this specialization, or *mención en lengua extranjera*, students take a number of courses aimed at, firstly, strengthening their competence in the English language and, secondly, training them in the pedagogies of EFL and CLIL (Table 1).

TABLE 1  
OVERVIEW OF THE ENGLISH-TAUGHT COURSES

Year	Course	Type
1	English for Education I (EFE I)	General English/ESP
2	English for Education II (EFE II)	General English/ESP
3	Teaching English as a Foreign Language I	Language pedagogy (EFL)
4	Teaching English as a Foreign Language II	Language pedagogy (EFL)
4	Content and Language Integrated Learning	CLIL pedagogy

It must be noted that, while in years 1 and 2 students are grouped by initial level of English, ranging from A2 to C1 according to the Common European Framework of Reference (CEFR, hereinafter), in years 3 and 4 students can expect to find themselves in larger groups which include a much wider range of language abilities.

The analyzed data were collected from the courses English for Education I (EFE I) (year 1, levels A2-B1) and Content and Language Integrated Learning (CLIL) (year 4, levels B1-C2). Whereas the former is a combination of general English, textbook-based course, and ESP, the latter focuses on CLIL theory and pedagogy and makes use of co-teaching as a strategy for scaffolding (Murphy et al., 2015) and an opportunity to vary presentation, individualize instruction and monitor students' understanding (Graziano & Navarrete, 2012). Although both courses offer cases of mixed-ability groups, the CLIL course included a much more noticeable range of levels of language competence, ranging from B1 to C2 CEFR. The number of students who attended these courses is shown in Table 2.

TABLE 2  
NUMBER OF STUDENTS IN THE EMI COURSES ANALYZED

EMI course	Academic year	N students
EFE I	2017-18	17
EFE II	2020-21	12
CLIL	2019-20	64
CLIL	2020-21	32
Total N students	2017-21	125

#### B. Research Design and Data Analysis

This study used a qualitative interpretive approach (Nunan, 2013) that can contribute to the domain of pedagogical approaches in EMI learning contexts. A semiotic perspective of language was employed to analyze student tasks that required the use of multimodal meanings. From the perspective of task design, the analysis made use of the analytical framework developed by Lin (2015), entitled The Multimodalities/Entextualization Cycle (MEC) (Figure 1).

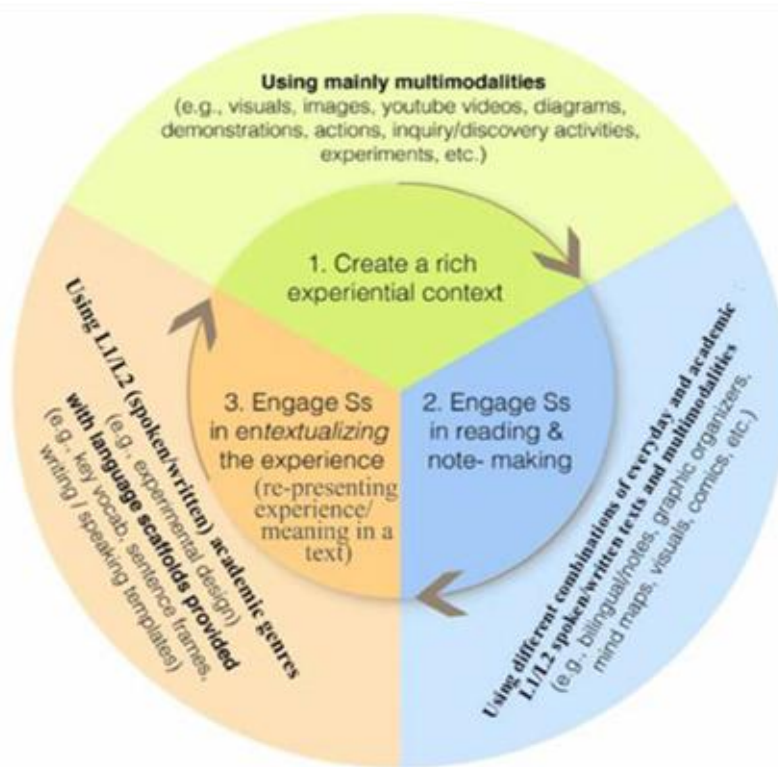


Figure 1 The Multimodalities/Entextualization Cycle (MEC) (Lin, 2015, p. 6) (Key: Ss = students)

The specific data collected were of two types. Firstly, instances of student multi-modal products, created as part of mandatory course tasks in the two subjects, were collected and analyzed. A description of the four tasks that led to the creation of such products can be found in appendices A, B, and C. Secondly, numerical course grades and attendance and participation records were obtained and used as indicators of academic performance and motivation, respectively.

Turning to student created products employing multi-modal texts, the analysis followed a framework of interpretive strategies based on Liu (2013) in order to assess to what extent they succeed in representing the meaning of the academic readings they are based on (Table 3).

TABLE 3  
MULTIMODAL TEXT INTERPRETIVE STRATEGIES

Strategies	Functions
Meta-interpretative	The multimodality is not ornamental and has been thought out to better convey the meaning
	The multimodal meanings are complementary to an overall meaning that is more than the meanings conveyed by the separate modes
Perceptual	The visual and design elements support the meaning interpretation
Analytical	The interrelationships among the visual elements in the multimodal text support in understanding the meanings associated with them in the original academic texts
Sociocultural	The multimodal text includes some kind of social, political and/or cultural evidence that conveys meanings beyond the literal level

Note: Adapted from Liu (2013).

The students' produced materials were analyzed for the presence of these strategies, and the different functions were counted as present in the multimodal text as long as there was at least one occurrence/use. As to student performance and motivation, student grades and attendance and participation scores were compared with those of other EMI courses in which students only incidentally engage with multimodal representations to extend the range of literacy learning.

#### IV. DISCUSSION OF THE FINDINGS

The results of the study will be presented in terms of (1) the description and analysis of the type of tasks that students perform, (2) the description and analysis of the multimodal texts that students produce from these tasks, and (3) the description of the academic performance and motivation of students in these EMI courses.

### A. Description and Analysis of the Tasks

The first analysis provides an assessment of the tasks (Appendices A, B, and C) using the framework provided by Lin's (2019) MEC cycle from the point of view of their design and the type of multimodal materials they promote. Table 4 shows the result of the descriptive analysis of the four tasks presented in this study.

TABLE 4  
DESCRIPTIVE ANALYSIS OF THE TASKS BASED ON THE MEC CYCLE BY LIN (2019)

MEC cycle Lin (2015)	Task 1 EFE I	Task 2 EFE I	Tasks 3-4 CLIL
Rich context	Websites Online documents for groupwork Storybooks (ICT) Demonstrations Formative assessment Sharing goals (metacognition)	Modelling Games Inquiry activity YouTube videos Formative assessment Sharing goals (metacognition)	Academic readings YouTube videos Cooperative work Demonstrations Use of ICT Formative assessment Sharing goals (metacognition)
Engagement in reading	Collaborative design of the group projects making use of the different online sources and ICT tools. Story boards E-book website	Notes Visual organizers: graphs Ppt graphs Research questions Research interviews Sample design	Notes Visual organizers Multimodalities: songs, videos, posters
Engagement in entextualizing	Collaborative writing, recording and illustration of stories using an e-book application. Genre: recount	Graphs Oral presentation of the results using a shared Ppt Genre: description and explanation	Oral presentation of content using the multimodal texts Genres: explanation and persuasion

As is evident from their design (see appendices A-B-C), these competency-based tasks involved an active role of the students, in particular in the processing of the information they were dealing with. Indeed, all of them went beyond the traditional pattern of Presentation Practice and Production (PPP) widely used in EFL classes. As Ikeda (2019) puts it, in these tasks students rather follow a pattern of Presentation *Processing* Production, in which they not only practice but analyze, describe, organize, design, or evaluate the information collaboratively.

Moreover, even in the case of task 2, which is the most EFL in nature of the four, the analysis of the task design following the MEC cycle (Lin, 2015) revealed that the level of cognitive demand was raised from lower order thinking skills (LOTS) to higher order thinking skills (HOTS). As described by Tsuchiya (2019), such emphasis on cognition may help to overcome the problem of lack of content in soft CLIL classes or, as in this example, in an EFL/ESP class.

It was also noticeable that, in all the activities, students used the multimodal materials both as a means and as a support for the understanding and/or creation of their own meaning. These examples of tasks reflect student-centered learning as described by Jacobs and Renandya (2016): students and teachers as co-learners, student-student interaction both face-to-face and online, learner autonomy, focus on meaning, curricular integration, diversity, thinking skills, alternative assessment, learning climate and motivation. And they also reflect what Ikeda (2019) defines as competency-based language education, in which learners not only learn content and language but develop cognitive, social and ethical skills that enable them to recall the information and reproduce the skills they learnt in other opportunities and contexts. This is what Lightbown (2014, cited in Ikeda, 2019) refers to as the "transfer-appropriate processing" hypothesis.

Indeed, these instances of "CLIL-ed" EMI task design reflect the "conspicuous features of CLIL lessons" stated in Ikeda (2012, cited in Ikeda, 2019, p. 25): they promote interaction and dialogic learning; they provide scaffolding and multimodal input; and they are developed in clear, authentic contexts likely to foster multiple-skill development through tasks that enhance the use of language and critical thinking. Therefore, it can be stated that these CLIL type activities developed in the EMI courses promoted deeper learning that students can put into practice in future similar contexts. Thus, the "CLIL-ed" EMI described in this work seems to be an excellent approach to language education in general (Ikeda, 2019), and at university level in particular, because it ensures a strong language focus in EMI courses (Pérez-Cañado, 2020).

### B. Description and Analysis of the Multimodal Texts

The second analysis conducted centered on the materials produced by the students as part of the aforementioned tasks. First, all the materials produced in the two courses are shown. In Figure 2, the materials produced by the EFE I students in task 1 "The origami project" are shown.

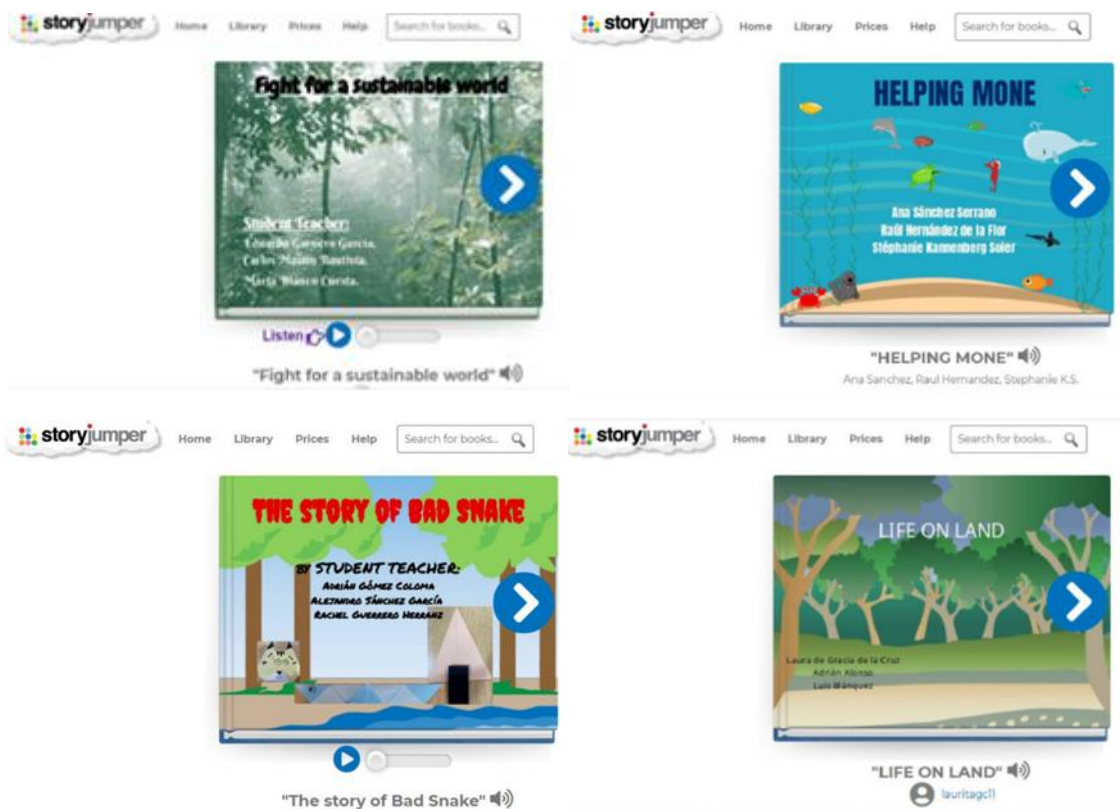


Figure 2 Task 1: The Origami Project. EFE I, Primary/Pre-Primary Education 2020-21

These four final products (ebooks) can be visited through the links in Appendix D. Next, Figure 3 shows the materials produced by EFE I students in task 2.



Figure 3 Task 2: Saint Valentine. EFE I, Primary/Pre-primary Education 2017-18

Figures 4 to 7 show students' materials produced in the CLIL subject in task 3, in which they were supposed to define the concept of CLIL based on their understanding of different academic texts.

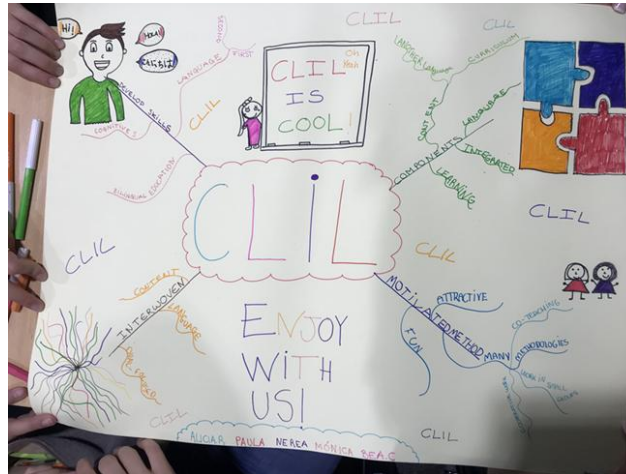


Figure 4 Task 3: Defining CLIL. CLIL Course, Pre-primary Education Group 2019-20

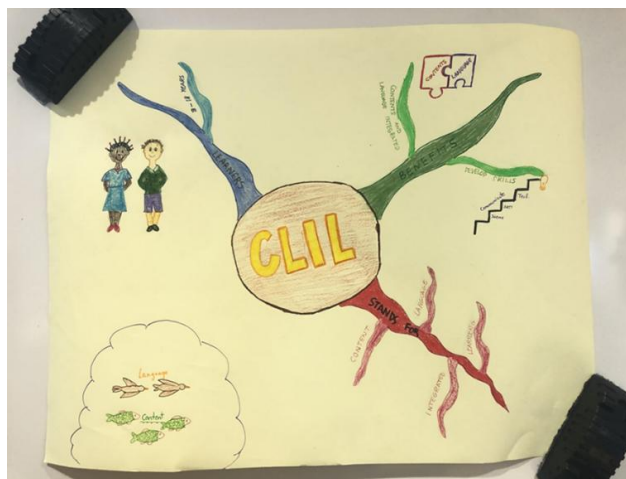


Figure 5 Task 3: Defining CLIL. CLIL Course, Primary Education Group 2019-20

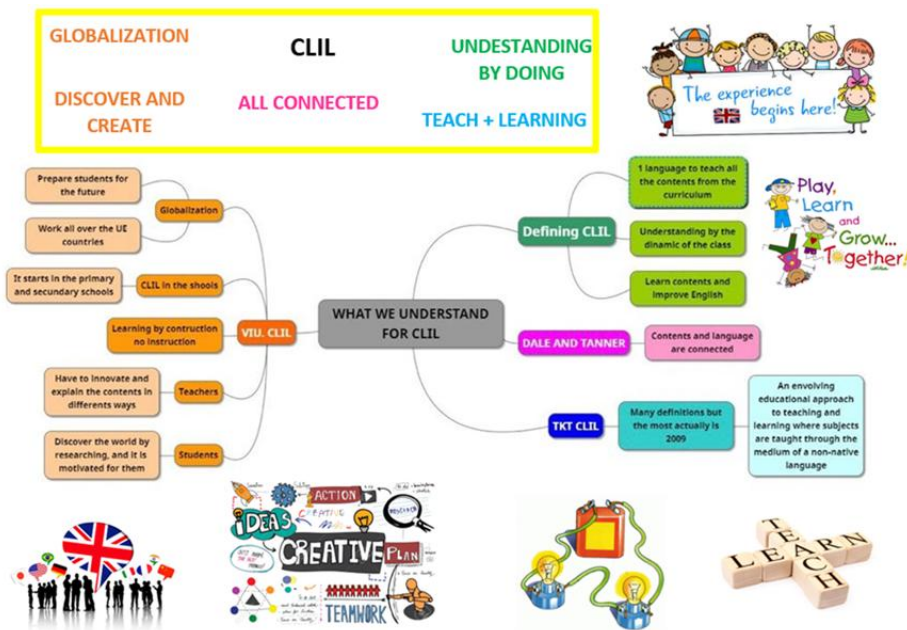


Figure 6 Task 3: Defining CLIL. CLIL Course, Pre-primary Education Group 2020-21

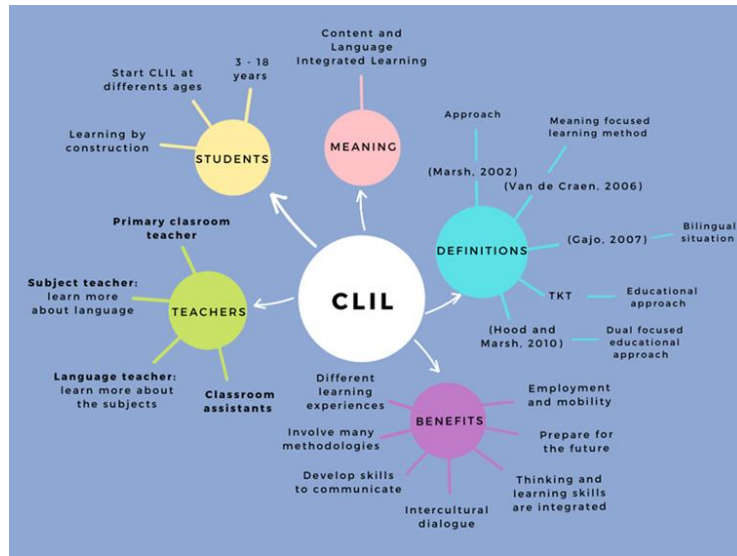


Figure 7 Task 3: Defining CLIL. CLIL Course, Primary Education Group 2020-21

Finally, Figures 8 to 11 show the examples of student productions to explain the benefits of CLIL in education. Again, students had to engage with several academic readings in order to obtain the necessary concepts and ideas.

**SONG**  
**These are the benefits of CLIL**  
**there are nine benefits in CLIL**  
**Benefits**

- more cognitively active during the process of learning

**Benefits**

- more motivation

**Benefits**

- communicative skills

**Benefits**

- build up learning

**Benefits**

- learn to speak and write

**Benefits**

- learn about the culture of a subject

**Benefits**

- learns in different ways

**Benefits**

- develop intercultural awareness

**Benefits**

- prepared for studying in another language

**Benefits of CLIL**  
**CLIL**  
**Benefits of CLIL**  
**CLIL**

Figure 8 Task 4: Benefits of CLIL. CLIL Course, Pre-primary Education Group 2019-20

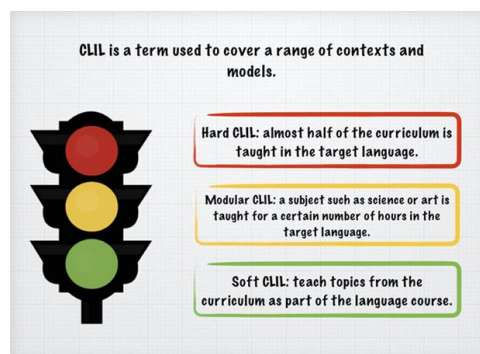


Figure 9 Task 4: Benefits of CLIL. CLIL Course, Primary Education Group 2019-20  
<https://sifo.comillas.edu/mod/kalvidres/view.php?id=1730688>



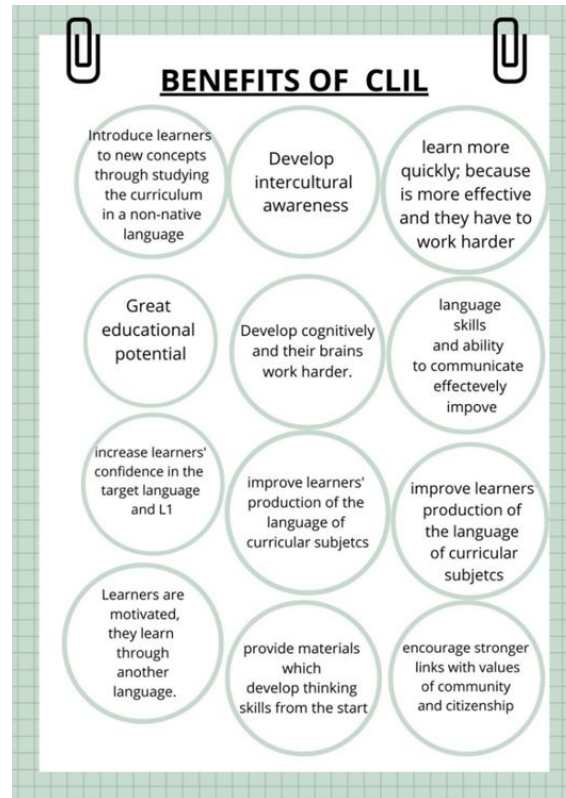


Figure 10 Task 4: Benefits of CLIL. CLIL Course, Preprimary Education Group 2020-21



Figure 11 Task 4: Benefits of CLIL. CLIL Course, Primary Education Group 2020-21  
<https://youtu.be/zcEoQvmtW5Q>

In turn, the above materials were analyzed from the point of view of the multimodality they include, making use of the framework of interpretive strategies described by Liu (2013). The total number of multimodal texts analyzed was 29. Table 5 shows the distribution of these texts according to their type and the course they belong to.

TABLE 5  
 STUDENTS' MATERIALS FOR THE MULTIMODAL TEXT ANALYSIS

Course	Multimodal text	N of multimodal texts
EFE I	eBook	4
	Graph presentation	17
CLIL	Mind map	4
	Song	1
	Video	2
	Poster	1
Total number		29

The result of this analysis reflected the relationships of the different patterns of meanings produced in multimodal texts and enabled an assessment of to what extent they managed to convey the meaning of the academic readings they were based on. The texts and related patterns of meanings were as follows:

- Mind map and presentation: spatial-visual-oral
- Songs: spatial-gestural-tactile-oral
- Infographic (poster) and presentation: spatial-visual-oral
- Videos: visual-audio
- Graphs: visual-oral
- E-books: spatial-visual-audio

The result of this analysis is shown in Table 6.

TABLE 6  
ANALYSIS OF STUDENT PRODUCED MULTIMODAL TEXTS (MT)

Strategies	Functions	Occurrence of function (N=29 MT)
Meta-interpretive	1. The multimodality is not ornamental	100%
	2. The multimodal meanings are complementary	100%
Perceptual	3. The visual/sound/movement and design elements support the meaning interpretation	86.2%
Analytical	4. The interrelationships among the visual elements support in understanding the meanings associated with them in the original academic texts	89.6%
Sociocultural	5. The multimodal text includes some kind of social, political and/or cultural evidence that conveys meanings beyond the literal level	89.6%

Note: Adapted from Liu (2013).

The results presented above suggest that the process of creating multimodal texts involved a range of functions related to metacognitive strategies such as making decisions, understanding the relationship of the ideas, representing those relationships in a multimodal way, or relating the ideas, with the ultimate purpose of conveying meaning to an audience.

In relation to the perceptual strategy, the use of ICT enhanced the creation of such multimodal texts by increasing the sensorial elements of the final products. The effect of using ICT to mediate the learning experience allowed to move from the almost exclusive use of written-oral linguistic modes, such as story writing-story telling in task 1, to a multiliteracy approach in which students combined the written language with other means of communication including images, sounds, symbols, or movement. This result supports the idea that “creators of digital media in a Web 2.0 network do more than simply reproduce a narrow canon of fixed disciplinary content and print-based conventions” (Mills, 2010, p. 235).

Moreover, the majority of the multimodal texts analyzed showed a very strong interrelationship among the sensorial elements they include and used sociocultural conventions to convey meaning. Rather than failing to convey meaning from the original source, they were able to express multimodal meanings that went beyond the academic content. Students’ interpretations or ideas were enriched from a semiotic perspective of the language and, therefore, improved the understanding of the original content. Such social semiotic approach, as suggested by Kress (2010), can help to enrich the variety of materials that students produce, making them more personal and more memorable, and thus, more likely to be reproduced in future performances. As Kress puts it “the use of modes in combination offers a fuller means for conveying meaning, richer than the comparatively sparse capacities of the linguistic modes of speech and writing” (2015, p. 57), which are usually favored at universities.

C. Description of Students’ Academic Performance and Motivation

The means of the academic performance of the EFE I and CLIL course students, who studied this “CLIL-ed” form of EMI, were compared with the average academic performance of students of another EMI course, entitled Teaching English as a Foreign Language (TEFL), in which EMI is implemented with less focus on multimodal literacies. Table 7 offers the results of this comparison.

TABLE 7  
COMPARISON OF THE AVERAGE ACADEMIC PERFORMANCE PER COURSE (“CLIL-ED” EMI/NON “CLIL-ED” EMI) AND DEGREE

Course	Degree	Academic year	Average means
TEFL II	Primary	209-2021	7.99
	Pre-primary	2019-2021	7.52
EFE I	Primary & Pre-primary	2017-21	8.2
CLIL	Primary	2019-2021	8.23
	Pre-primary	2019-2021	7.67

The better academic performance of students in the “CLIL-ed” EMI courses, in both degrees, is another evidence of the benefits of this type of literacy pedagogy through collaborative ICT tasks in EMI, and is in line with the results of

Zammit (2014). Besides, given that attendance and participation can be considered indicators of students' degree of motivation toward the course (Vlachopoulos & Jan, 2020), another evidence of the positive impact of this type of learning is the average mark in these components of the analyzed courses (Table 8).

TABLE 8  
AVERAGE MEANS IN ATTENDANCE AND PARTICIPATION MARKS IN THE CLILIZED EMI COURSES

Course	Degree	2017-18 means	2019-20 means	2020-21 means	Average means
EFE I	Primary & Pre-primary	7	---	9.56	8.28
CLIL	Primary	---	8.5	9.39	8.95
	Pre-primary	---	9.13	9.62	9.38

Although they can be attributed to many different factors, such high means appear to reflect their interest in hands-on learning and learner-centered education aimed at developing multiple competences (Ikeda, 2019). This interpretation is reinforced by the qualitative feedback students provided in the middle and end-of-course assessment activities they completed, in which, among other things, they expressed that they liked:

- *All the practice activities and work in groups.*
- *The activities to support what we learnt on [sic] each session.*
- *The fact that theory and activities are closely related.*
- *Active and participatory dynamics.*
- *Having practice related to theory so that we could see how it relates.*
- *That we have learned from real situations, real materials...*
- *Practical activities and real utility.*
- *The materials that use the teacher [sic] are very useful to me to understand better [sic] CLIL. The activities that we work in groups are nice to put in practice that [sic] we have already seen in class.*

## V. CONCLUDING REMARKS

The use of multimodal representations of meaning in the English classroom, whether EFL, ESP or EMI, promotes learner-centered methodologies and provides conceptual redundancy, peer interaction and negotiation of meaning through hands-on collaborative activities likely to help students to make sense and transform academic input in the foreign language. As this study has shown, this process of knowledge construction is supported by the use of the MEC cycle (Lin, 2015) and a social semiotic approach to literacy development in the design of the tasks (Lin, 2019), and is reinforced by the integration of ICT tools, which can contribute to the development of multimodal texts that reflect students' experience and skills in their real life. In line with Wu and Lin (2019), such approach to instructional design has proven to have a positive impact on the students' flow of knowledge co-making.

In addition, this learner-centered multimodal approach to language and content learning in EMI courses generates a context for learning that goes beyond written-linguistic modes of meanings and involves the use of multimodal representations to extend the range of literacy learning. It is a form of competency-based education which provides students with the opportunity to produce or create something new with the information they have in order to show their understanding, by taking account of different patterns of meaning other than the written-linguistic mode that is the usual standard in most EMI courses. Therefore, it can be concluded that the promotion of multimodal meanings in the EMI classroom, that reflect the different patterns of meaning existing in our society, can extend the range of literacy learning and favor not only the development of linguistic skills but also digital, social, and cognitive skills likely to improve university students' academic performance.

As with any other study, this one comes with a number of limitations. Firstly, all the analyzed activities were produced by groups of students who were taught by the same instructor. In this respect, it would be necessary to compare the multimodal representations of students in different groups of the same courses. In addition, future studies should engage in a more systematic description and analysis of the relationship between the attendance and participation records and the degree of motivation, possibly by collecting richer data from the students in the form of questionnaires or focus group interviews. In line with the work of Wu and Lin (2019), a fine-grained multimodal analysis of classroom activities based on the Multimodalities-Entextualization Cycle (MEC) and the interactions of students during their performance could lead to a better understanding of their final multimodal representations. Finally, it would also be interesting to conduct a similar type of analysis with non-Education degree students, in order to explore the effectiveness of this pedagogical approach in other EMI contexts. As Macaro et al. (2017, p. 36) put it, "there are also insufficient studies demonstrating, through the classroom discourse, the kind of practice which may lead to beneficial outcomes" for language and content learning in EMI. In particular, they claim that the "lack of research evidence on the impact of EMI on improving students' English proficiency requires more focused and clearly conceptualized investigation" (Macaro et al., 2017, p. 69).

Despite these limitations, the authors of this study believe that its analytical framework and findings can contribute to shed light on the field of second and foreign language development in EMI contexts. In practical terms, it is hoped that valuable ways have been suggested to help practitioners to support students' understanding and processing of academic content in their collaborative construction of knowledge.

APPENDIX A. EFE I TASK 1 THE ORIGAMI PROJECT

<b>Task 1 The origami project</b> (EFE I-year 1-A2-B1 students, 2020-2021)	
Title and instructions	Origami Project: Collaborative writing In groups write a story based on one of the 17 goals for sustainable development (United Nations) using origami characters and an ICT tool to create e-books. The project should be developed in the Google Doc available on Moodle for each group and include: a title, a description of the characters and their photos, the script of the story, a moral, the goal for sustainable development, the link to the e-book and the rubric. The steps of the project are described in the Ppt available on Moodle.
Sources	Glossaries of materials, formal aspects of stories, onomatopoeias. Story telling bibliography. Website to create the origami characters. Website to choose one goal for sustainable development. Website to create e-books.
Assessment criteria (as described in the rubrics)	<b>Story writing (collaborative):</b> -The main characters are named and clearly described in text as well as pictures. - Many descriptive resources are used to tell when and where the story took place. - Title is creative, sparks interest and is related to the story and topic. - Students devote a lot of time and effort to the writing process (prewriting, drafting, reviewing, and editing). - The story is very well organized. One idea or scene follows another in a logical sequence with clear transitions. - There are no spelling or punctuation errors in the final draft. <b>Collaborative work skills:</b> - A definite leader who contributes a lot of effort. - Group does not adjust deadlines or work responsibilities because of this person's procrastination. - Brings needed materials to class and is always ready to work. - Almost always listens to, shares with, and supports the efforts of others. Tries to keep people working well together. - Always speaks in English with the teacher and almost always with the rest of the group members.

APPENDIX B. EFE I TASK 2 HIJCKING SAINT VALENTINE'S DAY

<b>Task 2 Saint Valentine</b> (EFE I-year 1-A2-B1 students, 2017-2018)	
Title and instructions	<b>HIJCKING SAINT VALENTINE S DAY: LOVE WITH CAPITAL LETTERS</b> General task description -Each class (groups A2 to C2) prepares a skit, a poem, a song... to celebrate friendship and presents it on the day of. <b>A2-B1 Group task description</b> 1. Prepare a questionnaire to check understanding about this festival. 2. Apply the questionnaire to your classmates and reflect the results in a graph. 3. Make an oral presentation with the results on Saint Valentine's Day!
Sources	Online sources to find out information and facts about the festival. Saint Valentines' Day materials to model the creation of the questionnaire (online games, questionnaires, lesson plans, etc.). Pdf with the description of different types of graphs, their formal aspects and how to create them.
Assessment criteria	<b>General task (Groups A2 to C2)</b> - Students show understanding of the Festival and can prepare a skit, a poem, a song... to celebrate friendship and present it on the day of. - Students can integrate language skills and do an oral presentation about their project. - Students' spelling, grammar and syntactic correctness is appropriate to their language proficiency of English according to their level. <b>A2-B1 Group task (as described in the rubric)</b> - The graphs portraits the information collected from the questions in the best possible way. - The description of the graph is complete, accurate and reflects the information included in the graph. - Stands up straight, looks relaxed and confident. Establishes eye contact with everyone in the room during the presentation. - The body language reflects an assertive communicative style and makes use of movements and gestures to reinforce the message of the oral discourse.

## APPENDIX C. CLIL TASK 3 DEFINING CLIL AND TASK 4 THE BENEFITS OF CLIL

<b>Module 1 Understanding bilingual education and CLIL</b> (CLIL, year 4-team teaching-mixed-language ability students, 2019-2021)	
Title and instructions	<b>Module 1 Session 1 Jigsaw Reading Task</b> <b>Defining bilingual education and CLIL</b> Module I is taught following a task-based approach. Please refer to this document for the task descriptions, and publish your work underneath. This record complements the PowerPoint of the module, which will be published on Moodle. You will be assigned one of the tasks below. Please write your names
<b>Task 3</b>	<b>Tony Buzan Mind-map: Defining CLIL</b>
Sources	TKT Unit 1 p. 5 / Dale & Tanner (2012, p.3) + two videos: <a href="https://www.youtube.com/watch?v=ZM0zL0o4yK1">https://www.youtube.com/watch?v=ZM0zL0o4yK1</a> <a href="https://www.youtube.com/watch?v=IB96NiuGf9E">https://www.youtube.com/watch?v=IB96NiuGf9E</a> How to do a mind map: <a href="https://www.youtube.com/watch?v=MlabrWv25qQ">https://www.youtube.com/watch?v=MlabrWv25qQ</a>
Assessment criteria	- The information is effectively grouped into categories (branches) - The most important ideas are selected, with an adequate level of detail - The mind-map is visually attractive
<b>Task 4</b>	<b>Creative product: Benefits of CLIL</b> Transform the information into a creative product that memorable for your peers. You may record a video, sing a song, write a poem or a rhyme...
Sources	TKT Unit 1 p. 6 / Dale & Tanner (2012, p.11)
Assessment criteria	- The information is effectively grouped into categories (branches) - Important ideas are selected -The product is engaging and memorable for your audience

## APPENDIX D. TASK 1 EBOOKS

<https://www.storyjumper.com/book/read/101172016/606eb87cbe86b>  
<https://www.storyjumper.com/book/read/101170236/606ecdd7c9465>  
<https://www.storyjumper.com/book/read/101171586/606eba6605e9c>  
<https://www.storyjumper.com/book/read/101840716/606eb7ac3615d>

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