

CLIL and e-learning environments: The role of *Google My Maps* and students' written performance in Classical History

El enfoque AICLE y los entornos de aprendizaje en línea: El papel de *Google My Maps* y la producción escrita de los estudiantes en Historia Antigua

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Abstract

Education in the 21st century has moved towards digital learning to offer high quality programmes that meet the technological and communicative demands of today's society. Well-known approaches such as Content and Language Integrated Learning (CLIL) and English as a Medium of Instruction (EMI) may benefit from this new reality by addressing linguistic and cognitive challenges in written discourse. This paper examines the written performance of forty first-year undergraduate students coursing a CLIL module in History of the Classical World at a Spanish university. By means of *Google My Maps*, participants were expected to create a custom map describing five Roman vestiges of their choice. The findings indicate that students' L1 negative transfer may lead to grammatical and lexical inaccuracy. *Google My Maps* has proved to be a valid resource for the retention of History contents as well as for the acquisition of a foreign language in online learning environments.

Key words: CLIL, higher education, written competence, Open Educational Resources (OERs)

Resumen

La educación en el siglo XXI ha introducido el aprendizaje digital en programas de alta calidad para satisfacer las demandas tecnológicas y comunicativas de la sociedad actual. Enfoques conocidos como el Aprendizaje Integrado de Contenido y Lenguaje (AICLE) y el Inglés como Medio de Instrucción (IME) pueden beneficiarse de esta nueva realidad al abordar los desafíos lingüísticos y cognitivos del discurso escrito. Este trabajo examina la producción escrita de cuarenta y dos estudiantes de primer año de grado que cursan un módulo de AICLE en Historia del Mundo Clásico en una universidad española. Por medio de *Google My Maps* se espera que los participantes creen un mapa personalizado que describa los cinco vestigios romanos según su elección. Los resultados indican que la transferencia negativa de la L1 puede llevar a inexactitudes gramaticales y léxicas en la L2. *Google My Maps* ha demostrado ser un recurso válido para la retención de contenidos en Historia, así como para la adquisición de un idioma extranjero en entornos de aprendizaje en línea.

Palabras clave: AICLE, educación universitaria, competencia escrita, Recursos Educativos Abiertos (REO).

1. INTRODUCTION

Being able to master two foreign languages has been one of the main linguistic premises set by the European Commission (European Council 3). Significant efforts have been made to provide younger generations with the necessary professional and communicative skills that are required in today's society (Bellés-Calvera and Martínez-Hernández 4010). Evidence may be found in the implementation of the Content and Language Integrated Learning (CLIL) approach, where disciplinary instruction occurs in a foreign language (Coyle et al. 1), with English being the preferred vehicular language in different countries (Mele-Marrero 121; Morgado and Coelho 125). Nonetheless, the implementation of these programmes has not met the expected linguistic outcomes, probably due to a low exposure to the target language outside the learning environment (Lasagabaster and Sierra 372; Agustín Llach and Jiménez Catalan 99).

A renewed focus that integrates the implementation of Open Educational Resources (OERs) in the classroom would improve the efficiency of the CLIL approach (Lawrence and Tar 79; Scott and Beadle 3, 19-21; Chiu et al. E106-E107). This new scenario could be a

way to enrich and expand the learning opportunities in the future, especially when it comes to the development of writing skills in the English language. Not only does the use of OERs support language acquisition by maximizing exposure to the target language in face-to-face and digital learning environments, but it also contributes to making CLIL initiatives more appealing.

Past research in the field of foreign language acquisition (FLA) has reported the beneficial effects on receptive (i.e. reading and listening) rather than productive skills (i.e. speaking and writing), which are essential in academic contexts (Whittaker et al. 101). The use of technological resources in the development of speaking skills has spread rapidly in EFL learning environments. According to some studies, the implementation of OERs such as *Voki*, *Ello*, *Voxpop* has strengthened the learning of different speaking areas in the English language, such as fluency, pronunciation, intonation and interaction (Bellés-Calvera and Bellés-Fortuño, *Teaching English pronunciation with OERs: The case of Voki* 57; Moya-Pachón 85). Recent studies have also been concerned with the impact of OERs on the written competence of those students involved in CLIL practices, including *Blogging*, *Pixton*, *Bombay TV* and *Twitter*, among others (Montaner-Villalba, *Written Production in EFL through blogging and cooperative learning at A-level* 97; Bellés-Calvera and Bellés-Fortuño, *Written corrective feedback with online tools in the Medicine classroom: Bombay TV* 106; Cabrera Solano et al. 53; Hernández-Nanclares and Jimenez-Muñoz 259).

This paper presents the results obtained in a CLIL learning environment as regards the use of *Google My Maps* to produce written discourse in the English language. The tool was introduced to a group of first-year undergraduate History students coursing a content-specific module called *History of the Classical World*. The purpose of the current study is to examine written language accuracy as well as to determine the role of OERs as a pedagogical tool in the learning of curricular and linguistic knowledge.

2. LITERATURE REVIEW

In the last decades, the command of more than one than language has become a priority worldwide. This new “linguistic world order” (Maurais and Morris 1) has posed some challenges in the field of education as it responds to demographic, economic, historical, political, intellectual and entertainment factors (McDougald 10; Crystal, 7) that have shaped new practices in bi-/multilingual education. In Europe, these programmes spread at all educational levels through the CLIL approach, so that younger generations become

competitive professionals and communicators. Innovations in this field have moved towards digital learning, which relies on the incorporation of OERs.

Previous research in technology-enhanced CLIL classrooms has explored the features of these online sources. Authors such as Galitsyna and Yesenina (4-5) identified in their study the main principles of CLIL technology for engineering higher education institutions, which call for opportunities to authentic language sources usage, content and language teachers' interaction, active learner support, and OERs usage for the learning of disciplinary content. Other scholars highlight their role in the teaching process given that these pedagogical tools enhance the adoption of scaffolding strategies and serve as complementary tools in traditional instructional practices (Fageeh 420; Conole and Alevizou 41). Evidence is found in a study conducted in Spain dealing with the teaching of Music in secondary education (Bellés-Calvera 109). Within this project, addressed to 1st ESO students, OERs such as *YouTube*, *PowerPoint presentations* and *musicmap.info* were employed to facilitate comprehension and disseminate curricular content.

Bearing these aspects in mind, OERs can bring new possibilities into the CLIL classroom, where motivation is pivotal (Abdollahpour and Maleki 109; Coyle 11). Therefore, it is essential to develop appropriate educational strategies that do not only result in enjoyable learning (Dörnyei 29, 43), but also in the acquisition of skills that adjust to the needs of CLIL learners. Through the performance of individual and collaborative tasks and games, CLIL participants have the opportunity to gain abilities that will be helpful throughout their academic and professional careers (Pogrow 64), namely digital literacy, critical thinking, problem-solving, cultural, social and autonomous competences, among others (Abentao et al. 1).

Regarding the teaching and learning of languages, OERs have proven their potential to support effective CLIL initiatives, particularly when it comes to the progress of receptive skills (i.e. reading and listening) (Prieto-Arranz et al. 123). As reported in studies conducted in Taiwan and Turkey, students improved their reading comprehension and developed positive attitudes towards digital learning environments (Huang and Hong 175; Simsek 200). The integration of OERs in the classroom setting has also entailed other benefits in the learning of reading skills related to autonomy and individual needs (Abdallaoui Maan 21). As for listening skills, videos and podcasts are considered some of the best materials in foreign language learning due to exposure to authentic language and

the use of additional visual aids such as body language and podcasts (González Otero 89; Oddone 105).

Experiments at tertiary education revealed that the use of online software (e.g. *Hot Potatoes* and Moodle glossary) has favoured the retention of specific terminology (Perea-Barberá and Bocanegra-Valle 129; Raigón Rodríguez and Gómez Parra 103). Recent research in Geography lessons has stressed the functionality of online resources like *Kahoot* in vocabulary acquisition since the language level can be adapted to students' needs (Montaner-Villalba, *The use of KAHOOT in the EFL classroom within the CLIL approach* 167). These linguistic areas can also be promoted through digital storytelling and the use of narrated pictures by means of *Photostory 3* and *PowerPoint* presentations, among others (Alcantud-Díaz et al. 15, 19).

Contributions of new technologies in educational programmes can be observed in the development of productive skills (i.e. speaking and writing), which are highly demanded in academic and professional contexts (Whittaker et al. 343). For instance, the pronunciation area was examined by Bellés-Calvera and Bellés-Fortuño (*Teaching English pronunciation with OERs: The case of Voki* 57) through the use of *Voki*, a platform with a set of audiovisual aids that boosts students' motivation. The findings revealed that learners were satisfied with the use of this tool in regular sessions as they could improve their English pronunciation. Despite all the aforementioned benefits in technology-enhanced CLIL practices, further research needs to be conducted with regard to writing skills (Bellés-Calvera and Bellés Fortuño, *Written corrective feedback with online tools in the Medicine classroom: Bombay TV* 117).

a. Written competence

Writing is a productive skill based on the creation and organisation of ideas to convey meaning. Due to the internationalisation of higher education, the ability to write texts that integrate both content and a foreign language has become a priority, especially because it "is the most widespread form of recording CLIL students' knowledge" (Whittaker et al. 343).

When supported by online tools, grammar and lexical complexity have been two of the main concerns. Evidence may be found in the creation of didactic materials through *Pixton*, a tool introduced to improve their grammatical and lexical knowledge in the target language that resulted in enjoyable learning experiences (Cabrera Solano et al. 53). The efficiency of mobile learning in CLIL education has been explored in Montaner-Villalba's

research (*Written Production in EFL through blogging and cooperative learning at A-level 97, Critical Thinking and Written Production in the EFL classroom through Blogging 167*), more specifically the role of *Blogging* and *Twitter* have in the improvement of students' critical thinking summarizing skills.

Other elements that have been of interest have to do with language accuracy, creativity and corrective feedback. These issues were considered by Bellés-Calvera and Bellés-Fortuño (*Written corrective feedback with online tools in the Medicine classroom: Bombay TV 106*) in their study by British spelling analysing the data gathered from the video scripts on *Bombay TV* produced by medical students adding subtitles to short videos. The results allowed describing the lexico-grammatical errors committed by medical students through a developed proposal for the assessment of students' written outcomes.

b. Objectives

Based on previous literature, this paper sets out to investigate the features of students' written performance as well as the potential of *Google My Maps* as a tool that strengthens the production of written discourse in the CLIL classroom. To achieve this goal, the current study focuses on the following research questions (RQ):

1. What types of writing errors can be spotted in first-year tertiary students in a History CLIL classroom in the production of *Google My Maps* texts?
2. Is there any significant difference between male and female students' written performance in *Google My Maps* texts?
3. What benefits can the use of *Google My Maps* entail in a CLIL History classroom?

The areas of the methodological framework that have been considered are outlined in the next section. The findings reveal that face-to-face, blended and distance learning modes can benefit from the integration of OERs as they can adapt to the demands of CLIL participants.

3. METHODOLOGY

The methodological approach employed in this study is provided below. A thorough description of the participants, the tools, the procedure and the corpus of the study will be revised for the analysis of first-year tertiary students' written competence in a CLIL learning environment.

a. Context

Following the linguistic policies devised by the European Commission, several bilingual and multilingual programmes are offered in higher education. The module selected for the study was delivered at a Spanish university located in a bilingual region where English has been chosen as a vehicular language for CLIL practices. Within this CLIL programme, Spanish, Catalan and English were employed as languages of instruction, but their presence in the classroom setting differed to a large extent. Spanish and Catalan were the means of communication in the theoretical component of the subject. English, however, was the vehicular language in CLIL seminars. It is our intention here to address this issue in our study.

b. The sample

Concerning the sample, a female lecturer and forty undergraduate students, aged between 18 and 37 years old, took part in this research. The group consisted of 19 female and 21 male students coursing *History of the Classical World*, a subject taught during the second semester in the History and Heritage degree.

Table 1. Participants

History of the classical world				
	Year	Male	Female	Age
Teachers	1st	-	1	26
Students		21	19	18-37

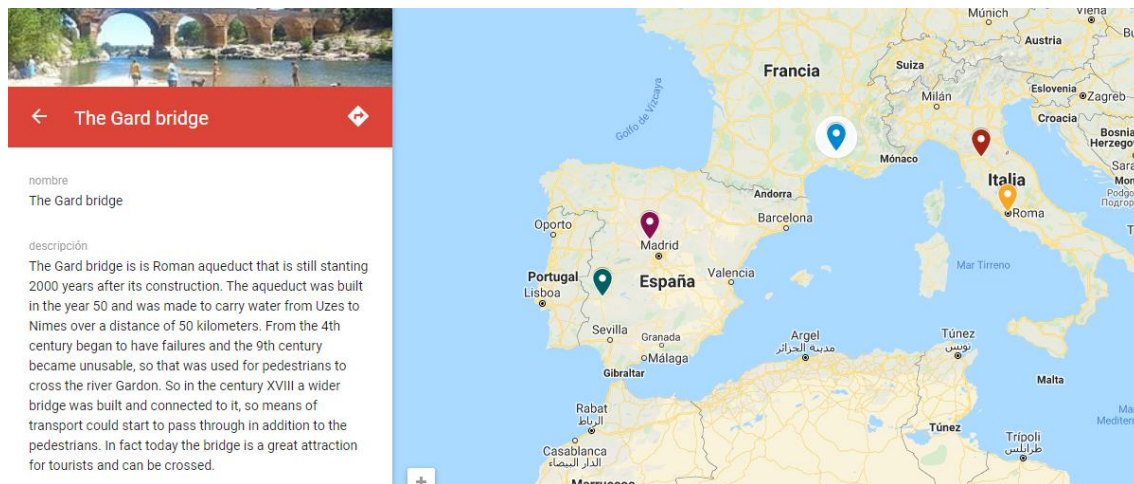
The subjects were mainly from the Valencian Community and thus mastered Spanish and Catalan at a native-speaker level. In addition, a reduced number of students also had Romanian as their mother tongue. However, differences arise when it comes to the command of the English language. Due to the basic training nature of the course, no previous English qualifications were required before admission, thereby having a group with heterogeneous proficiency skills. The sample was, thus, selected consciously in order to examine the effect of OERs in the development of learners' written proficiency in CLIL settings.

c. The tool: *Google My Maps*

Google My Maps is a resource that offers a wide range of practical applications in the classroom (Duffy 1-2). With this user-friendly tool, which allows for the creation of

interactive and customised maps, multimodality plays a significant role. Content can be displayed with visual, audiovisual and textual aids (e.g. titles, videos, pictures and descriptions). Other features have to do with the usage of different markers, lines, shapes, colours, icons, labels and layers, which can be adapted to the geographical locations of your choice as well as enhance the comprehension and interpretation of content.

Figure 1. *Google My Maps* screenshot



It also serves to establish curricular and cross-curricular connections in modules belonging to different domains, such as Literature, Biology, Maths and History. What is more, teachers and learners can benefit from collaborative and individual learning strategies, all of them having an impact in the production of written discourse. Within the CLIL classroom, *Google My Maps* can be perceived as an innovative resource that is useful for the presentation of lesson materials as well as for the provision of immediate corrective feedback. The fact that this device enables the design of trip itineraries is a good asset that should be considered in the CLIL classroom since it nurtures creative communicative practices.

d. Research materials and procedure

As the purpose of this study was to analyse students' written outcomes in the English language when supported by OERs, CLIL learners had to complete a written assignment individually with *Google My Maps*. The integration of this tool was totally new to most of them since they did not know how to exploit its full pedagogical potential in and beyond the classroom. Rather, students were familiar with traditional methodologies that have been largely used for the production and submission of written tasks. All the necessary

steps and strategies that were meant to be implemented in their written performance were explained in detail in online learning sessions through narrated *PowerPoint* presentations, tutorial videos and written guidelines, all of them available on the virtual classroom of the course.

The corpus used in this paper consists of 42 multimodal maps based on a written assignment. The links for the maps were automatically generated with the resource mentioned and sent to their CLIL teacher, gathering a total number of 210 pieces of text. Students had to write about archaeological buildings, roads, sculptures or any other vestiges from ancient Rome that they found intriguing or had not been covered in class. They also had the opportunity to include data related to historical facts, curiosities, and their personal opinions.

To this end, the topics and instructions given were available on the Virtual platform of the course in different formats and media. Narrated *PowerPoint* presentations and glossaries were uploaded on the virtual classroom of the module so that participants got familiar with some of the main architectural structures Romans left behind. Support was also given by means of glossaries, videos, e-mails, articles and links to external sources. In so doing, scaffolding learning strategies were employed to promote autonomous learning as well as summary and thinking skills, which are pivotal in written discourse.

e. Data analysis

To obtain these quantitative data, the various activities carried out by the students were scored using numerical marks. These scores, according to the Spanish educational system, run from 1 to 10, where 1–4 is a fail, while 5–10 is a pass. The numerical marks were used to score the different variables that made up the final written product: content of the text, organisation and structure of the text, grammar, vocabulary and spelling.

The written productions were reviewed to detect errors made by the participants at a linguistic and cognitive level. As observed in Table 2 below, the criteria for the assessment of students' written performance were based on: content (acquisition, development), language (grammar and vocabulary), creativity and structure as expected in a CLIL practice.

Table 2. Assessment criteria: written outcomes

Criteria	Needs improvement	Satisfactory	Good	Excellent
CONTENT (40%)				
Content acquisition	Most	Some	Most	All the

	architectural and sculptural Roman remains described in the writing have been covered in class.	architectural and sculptural Roman remains described in the writing have been covered in class.	architectural and sculptural Roman remains described in the writing have not been covered in class.	architectural and sculptural Roman remains described in the writing have not been covered in class.
Content development	Little or no original thinking is present in the writing. Most ideas are vague and some of the required questions are missing.	Some original thinking and basic summary skills are present in the writing. Some ideas and required questions are developed originally, but some others are missing.	Original thinking and good summary skills are present in the writing. The main ideas and required questions are supported with quality evidence.	Original thinking and excellent summary writing skills, All the ideas and required questions are supported with high-quality evidence.
LANGUAGE (40%)				
Grammar	Many spelling, punctuation, and grammatical errors are present.	Some spelling, punctuation, and grammatical errors are present.	Most spelling, punctuation, and grammatical errors are not present in text, which may contain some minor mistakes.	Spelling, punctuation, and grammatical errors are not present in the text.
Vocabulary	Use of historical terminology related to ancient Rome is limited and/or inappropriate in most contexts.	Use of historical terminology related to ancient Rome is limited and/or inappropriate in some contexts.	Use of historical terminology related to ancient Rome is vast and/or appropriate in most contexts.	Use of historical terminology related to ancient Rome is vast and appropriate in all contexts.
STRUCTURE (10%)	Writing shows some coherence, but ideas lack unity and logical	Writing is coherent and some ideas are logically organised.	Writing is coherent and ideas are logically organised.	Writing is coherent and ideas are logically organised

	organisation. Serious errors and generally is an unorganised format and information.	Some points may not be contextually clear due to the use and/or omission of transitions throughout the production.	Most points are contextually clear due to the use of transitions between ideas and paragraphs throughout the production.	and explained in detail. All the points are contextually clear due to the use of transitions between ideas and paragraphs throughout the production.
CREATIVITY (10%)	No use of visual aids. Personal opinion is not given.	Use of some aids (pictures or icons). Personal opinion is not included.	Use of visual aids (pictures, icons). Personal opinion is somehow included	Use of a number of visual aids (pictures, icons). Personal opinion is included.

At a linguistic level, feedback was provided by means of comments. Table 3 indicates the grammatical and lexical errors that have been examined in this research as these are usually spotted in foreign language written discourse.

Table 3. Lexico-grammatical errors

LANGUAGE	
Lexical errors	Grammatical Errors
Unnecessary additions	Subject-verb agreement
Omission	Singular/plural forms
Wrong word choice	Verb Tense
Wrong word form	Unclear utterances
Lexical transfer	Wrong order
Spelling	Punctuation

Lexical errors comprise unnecessary additions/repetitions, omission (e.g. nouns, pronouns, prepositions, articles or utterances), wrong word choice (e.g. nouns, pronouns, verbs, prepositions, adjectives, adverbs or collocations), wrong word form, lexical transfer (e.g. calques, coinages, borrowings or lexical inventions) and spelling. The latter were listed based on Lastres-López and Manalastas' taxonomy of spelling mistakes (125) (see Table 4). On the other hand, grammatical errors involve singular/plural agreement, verb tense, unclear utterances, wrong order and punctuation.

Table 4. Classification of spelling errors (Lastres-López and Manalastas 125)

Type of spelling error	
Phonologically-related errors	Homophones
	Minimal pair
Absence or presence of a grapheme	Double consonant not doubles
	Absence of vowel
	Addition of consonant
	Addition of vowel
	Single consonant doubled
Incorrect choice of grapheme	Incorrect vowel
	Incorrect consonant
Splitting of the word	
Other	

The number of lexical and grammatical errors made by the participants was spotted and proof-handed based on the categories abovementioned. Gender variables were considered to determine if there exist substantial differences between males and females who use English as a vehicular language in their written outcomes.

4. RESULTS AND DISCUSSION

The manual analysis of the 42 maps containing 210 short texts has been pivotal to detect and classify learners' weaknesses in writing. The findings obtained in the present study are meant to describe and compare the written outcomes produced by History undergraduate students with the use of *Google My Maps* software. Apart from these

linguistic elements, additional content, creative and organisational issues have been observed and discussed below.

a. Lexico-grammatical errors

History students' written performance was characterised by grammar and vocabulary inconsistencies (See Table 5). Results indicate that the number of written errors is unequally distributed since a wide variety of them can be found at a lexical level with meaningful gender-based differences.

Turning now to the differences between male and female individuals, our data reveal that the most common type of lexical errors is that of spelling. Out of a total of 534 errors, 328 inconsistencies correspond to male participants, a mean of around 15.62 errors per person. The remaining 206 lexical errors were found in females' writings, with an average of roughly 10.84 errors per participant.

Table 5. Results from students' writings: Lexico-grammatical errors

Lexical errors	Number of lexical errors			Number of lexical errors per person				Difference per gender (%)
	M	F	Total	Mean		Frequency		
				M	F	% M*	% F*	
Unnecessary additions	21	14	35	1.00	0.74	57.58%	42.42%	-15.15%
Omission	50	38	88	2.38	2.00	54.35%	45.65%	-8.70%
Wrong word choice	60	33	93	2.86	1.74	62.19%	37.81%	-24.39%
Wrong word form	22	11	33	1.05	0.58	64.41%	35.59%	-28.81%
Lexical transfer	48	34	82	2.29	1.79	56.09%	43.91%	-12.18%
Spelling	127	76	203	6.05	4.00	60.19%	39.81%	-20.38%
Total	328	206	534	15.62	10.84	59.03%	40.97%	-18.05%
Grammatical	Number of			Number of grammatical errors per person				

errors	grammatical errors			Mean		Frequency		Difference per gender (%)
	M	F	Total	M	F	% M*	% F*	
Subject-verb agreement	16	17	33	0.76	0.89	45.99%	54.01%	8.02%
Sing./Plural forms	12	4	16	0.57	0.21	73.08%	26.92%	-46.15%
Verb Tense	21	9	30	1.00	0.47	67.86%	32.14%	-35.71%
Unclear utterances	6	8	14	0.29	0.42	40.43%	59.57%	19.15%
Word order	14	15	29	0.67	0.79	45.78%	54.22%	8.43%
Punctuation	13	13	26	0.62	0.68	47.50%	52.50%	5.00%
Total	82	66	148	3.90	3.47	52.92%	47.08%	-5.84%

*Error rate by category over the total per person

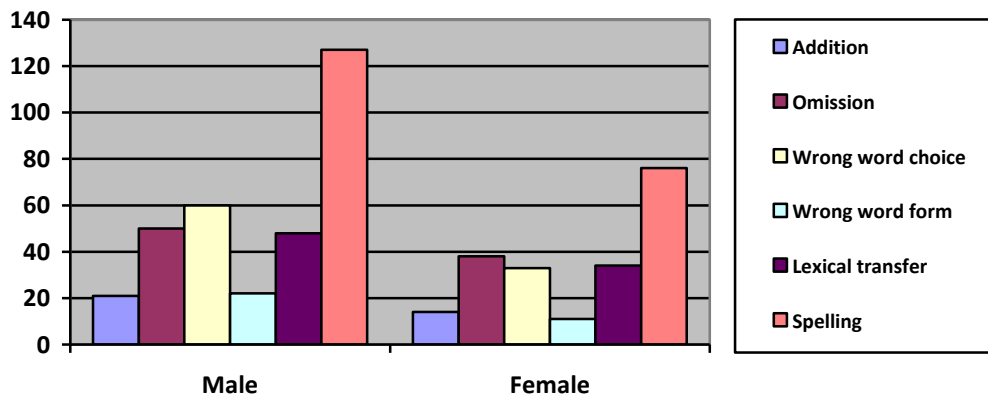
As summarised in Table 5 above, grammatical inaccuracies were noticeably lower for both genders as only 148 errors could be recognised in students' interactive maps. This distribution of errors shows that male university students failed to use verb tenses and singular/plural forms, whereas errors in females' multimodal writings referred to unclear utterances, word order and subject-verb agreement. A closer look at these results indicates that the average of grammatical errors was 3.9 errors per male individual, whilst it was 3.47 errors per female individual. Overall, it is female participants who seem to have a better command of their writing abilities in the English language, particularly at a lexical level.

i. Lexical errors

Figure 3 illustrates that spelling is the most common lexical error found in male learners' maps, followed by wrong word choice, omission and lexical transfer, these latter being quite similar in terms of frequency. Similar trends can be observed in females' written outcomes, which are characterised by a high number of spelling mistakes. Unlike male written texts, the omission of nouns, articles and utterances comes in the second place, whereas the prevalence of negative transfers from their mother tongue (L1) and wrong word choices remains nearly the same. As to the misuse of word form and addition

instances, it is worth mentioning that these categories are not as usual as the aforementioned elements. Therefore, it can be concluded that the greatest difficulties for the subjects –particularly males– are related to spelling, wrong word choice and omission.

Figure 2. Lexical errors graph



Spelling

Spelling errors have been identified as the most remarkable written errors in CLIL discourse, especially when supported by *Google My Maps*. Non-native speakers may find it difficult to learn orthographical rules in the English language due to the lack of correspondence between writing and speech between graphemes and phonemes (van Gelderen 15).

Although both males' and females' written performance is characterised by spelling mistakes in the target language, it should be noted that out of the 203 spelling errors identified in the CLIL classroom, 127 are made by male students whilst 76 mistakes correspond to female students. Following Lastres-López and Manalastas' classification of spelling mistakes seen above (125), phonologically-related errors, absence or presence of graphemes, incorrect choice of graphemes and splitting of the lexical items have been recognised. Most spelling errors have to do with the capitalisation of nouns and adjectives, as well as with the misuse of letters, exemplified in the excerpts below (errors in italics).

- (1) That Aqueduct brought the water which *roman* technicians found at a distance of thirteen kilometres from the city (Trevi Fountain, female learner).
- (2) It is said to be the longest wall in Patricia Delia Catinas Europe and it was made to separate the *barbarians* from the Romans (Hadrian's Wall, female learner).

- (3) This great work of Roman *ingenieering* has 167 arches and a *lenght* of 16'222 meters. The aqueduct divides the city in two and despite this in harmony with the rest of the monuments of the *beatiful* city of Segovia, such as the Cathedral, The Alcazar and the walls (The Aqueduct of Segovia, male learner).
- (4) It is an *atthentical* jewel of the Roman architecture (Roman theatre in Mérida, male learner).

As seen in the examples, learners failed to capitalise adjectives indicating origin (eg. *roman* and *barbarians*), probably because this rule does not apply to students' first languages, namely Spanish and Catalan. Incorrect vowel choices can be found in *ingenieering*. The absence of the /u/ grapheme is identified in *beatiful*, whereas the omission of vowels (e.g. /u/) and presence of new consonants (e.g. /t/) is spotted in *atthentical*. Such wrong choices suggest that participants were not only confused by silent letters but also by the linguistic mismatch between spoken and written systems in English. Another explanation for these misspellings may be linked to revision. The fact that *Google My Maps* software is not provided with spell and grammar checkers does not guarantee the examination of the errors students make. Therefore, revising, editing and proofreading strategies should be introduced in the classroom setting in order to guide learners throughout the writing process.

Wrong word choice

Wrong word choice errors occur when inappropriate items are included in the text, which result in sentences making no sense. Despite differing in the number of instances found in males' and females' performance, wrong word choice errors are the second and third most salient type of error for males and females with 60 and 33 errors respectively.

- (5) Taking into account the references, it was built *among* the 16 *to* 15 centuries B.C. This cultural icon is one of the most visited landmarks in Spain. (Emerita Augusta Theatre")
- (6) Ferreres aqueduct, also known as "Puente del Diablo" due to a legend *of* this construction, was built in the 1st century AD, under the command of Emperor Augustus (Ferreres aqueduct, male learner).

The existence of double equivalents in the English language may not be clear and leads to the misuse of prepositions and nouns. The ideal equivalents for the prepositions *among...to* and *of* correspond to *between...and* and *about*.

Omission

Omission errors have been detected in 88 cases, especially when a lexical item or a group of items are missing in the written outcomes generated through *Google My Maps*. The distribution pattern is unequal in terms of gender, but no striking differences can be noticed, with 50 of these errors being committed by males and 38 by females.

(7) This bridge [...] was declared a UNESCO world heritage (*SITE*) in 1994. It is 331 meters long and it has 16 arches, being one of the most important (*BRIDGES*) entering to the south of Hispania (male learner).

(8) Built in 315 AC. (*IT*) Was commissioned by the Roman Senate in order to commemorate Constantine's victory over emperor Maxentius at the Battle of Milvian Bridge (Arch of Constantine, female learner).

As illustrated in examples 7 and 8, nouns and subjects are occasionally omitted following the written conventions they have learnt in Spanish. Nonetheless, other linguistic elements that tend to be missing in these interactive maps include conjunctions, definite and indefinite articles, thereby being strongly influenced by their native language.

Lexical transfer

Another category that was problematic in learners' writings has to do with lexical transfer, which takes place due to interferences from their L1. This is the fourth most common category in males' written outcomes with 48 instances, but it is the third most frequent type of error for females.

Subcategories such as calques, coinages, borrowings, semantic confusions or lexical inventions were examined, but sometimes they were difficult to explain. Borrowings were employed to signal unknown items in the target language by inserting words directly taken from their L1. Some of them were not familiar with the abbreviations used in the Gregorian calendar system, which stand for Before Christ (BC) and Anno Domini (AD) (in the year of our Lord). Evidence is found in the following excerpt:

(9) The inside of the library and all of its contents were destroyed in a fire at the 262 *AC* due to an earthquake or a Gothic invasion. (Library of Celcius, female learner)

Other borrowings involve common and proper nouns. In example 6 orthographical similarities between *prision* (taken from Spanish) and *prison* (English) could led the student to some confusion. Examples 10, 11, and 13 suggest that the use of Spanish equivalents may be the determined by orthographical and phonological similarities.

However, the student's unawareness of the British religious culture can be inferred from example 12, where *Camino de Santiago* is employed instead of *Way of St. James*.

- (10) In 11th century it became a christian church, and in 19th century a prision (Amphitheatre in Tarraco, female learner).
- (11) The Roman Pantheon is one of the preserved monuments of Ancient Rome. It was built in the second century (118 AD - 125 AD) during the Adrian's empire (Roman Pantheon, female learner).
- (12) This wonderful monument was declared a World Heritage Site by UNESCO in 2000 and it was included in the primitive way of the Camino de Santiago in 2015 (Roman Walls of Lugo, male learner).
- (13) A visit to the Roman Ruins of Itálica is a must if you are in the city of Seville since it is the "Pompeya of Spain", its mosaics are *know* for the exceptional quality and state of preservation throughout the world (Roman Ruins of Itálica, male learner).

The use of coinages has also been influenced by participants' L1, who adapt words into the English language so that they look or sound alike. Incongruences between students' L1 and L2 and semantic confusion can be found in example 14. Thus, it can be assumed that the learner forgets about the existence of other semantic-related words.

- (14) The tower has 55 meters told, and it was built by the romans in the 1st or 2nd century AD. Nowadays it still works and is the unic and oldest roman lighthouse in the world. (The Tower of Hercules, male learner)

Literal translations, also known as calques, have been identified in CLIL learners' written performance. As observed in 15 and 16, words or expressions are translated into the target language assuming that these morphosyntactical structures convey the same meaning, even though they are not correct in English. Instead, the correct equivalents would be: *was no longer used* and *aim/purpose*.

- (15) However, the roman theatre stopped using with the arrival of Christianity (Roman Theatre in Merida, female learner)
- (16) The end was to replace the old Carthaginian palisade of logs and mud (Seville Wall).

The occurrence of these lexical transfer errors makes us think that more exposure to authentic language should take place. The use of complementary digital resources could help learners improve their communicative competence so that these errors do not get

fossilised. Hence, *Google My Maps* could be employed in the classroom together with spell-checkers, language dictionaries and other pedagogical tools.

Wrong word form

Wrong word form choices consisted of incorrect items that do not fit in the context, these being the least common errors produced by CLIL learners with a total number of 33 cases. The fact that two words have very similar forms may lead to confusion as shown in the following instances.

(17) *Gladiator* fights (munera) and fights of wild beasts (venationes) and also public executions of those condemned to death were held. *Its* one of the best preserved monuments in the Roman province of Hispania (Roman Amphitheater in Tarragona, male learner)

(18) This as a good complex of thermal waters *consisted* of hot, warm and cold baths. (Bath, female learner)

In example 17, the student was meant to use an adjective (e.g. gladiatorial), but ends up using the noun form of that item. Another word formation error is considered in example 18, where the student wrongly uses the ending -ed, which should be replaced by -ing.

Addition

These lexical errors have been detected when unnecessary articles, prepositions or other linguistic elements have been added or misplaced in the text. These errors were occasionally committed by CLIL learners, who were not able to avoid useless items in the target language. Males committed 21 of these errors in contrast to females who produced 14.

(19) This amphitheater is a Roman building (LOCATED) in *the* ancient Tarraco,

(20) It is located in Merida, previously called *as* Emerita Augusta (Roman Theatre in Merida).

(21) One of the three preserved Roman fish farms in the province of Alicante, these ruins are nowadays *an* open to the public place where you can swim and appreciate the ancient stone carvings Romans, arranged for the farm to be useful at its most.

As seen in the examples above, definite and indefinite articles as well as prepositions are wrongly employed. In examples 19, the definite article is added due to students' mother tongue. However, no explanation can be given with regards to the use of the indefinite

article *an*, as in example 21. As for example 20, students' familiarity with the expression *known as* may have prompted the misuse of this preposition.

The presence of unnecessary repetitions should be avoided in the text in order to create high-quality texts. Some excerpts of students' written performance can be read as follows:

(22) It is *inexplicable to explain* how they could have been brought there without the help of the technological advances that we have today (Baalbek)

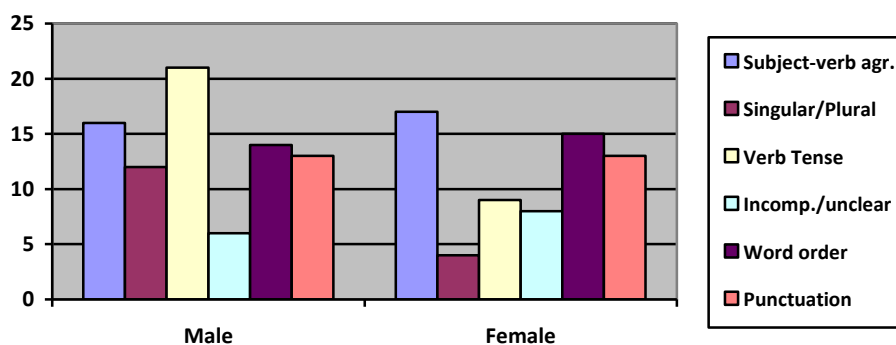
(23) The design has been perfectly preserved *to this day* and *to this day* serves as the main concert venue of Athens (odeon of herodes atticus).

Evidence may be found in examples 22 and 23 above, which contribute to making the text redundant. Instead, different adjectives could be included in example 22 and the expression *to this day* could be removed.

ii. Grammatical errors

Figure 4 displays the most salient grammatical errors encountered in this study. Male participants found it hard to conjugate verb tenses properly in contrast to their female counterparts, the former ones with only 9 cases. Other typical errors that take place in their written pieces have to do with subject-verb disagreement, wrong word order and singular/plural forms. Punctuation and unclear utterances seem to be the least recurrent grammatical errors in texts written by CLIL learners.

Figure 3. Grammatical errors



Verb tense

From the data gathered, the wrong construction of verb tenses remains the most persistent grammatical error in the CLIL classroom with striking differences between both genders. It should be stressed that these results are not the same for female learners, who

seem to perform better within this category with 9 errors as opposed to male learners where 21 of them were spotted.

What has caught our attention the most are inaccuracies with passive and perfect tenses. In this sense, our data seem to reflect either poor communicative skills or lack of thinking that may somehow lead to fossilised errors. In example 24, we can see the absence of the perfect tense, in which the presence of the verb *to have* and past participle forms is required (e.g. I have already visited).

(24) I chose this place for my assignment because I already visit this theatre three times as part of a scholar trip (Sagunto Roman theatre, female learner).

As regards the construction of the passive voice, the student's incorrect use of the regular past participle in *are divides* should be revised so as to be aware of the correct structure.

(25) The Roman cities are divides into two main streets, the *Cardo Maximus* (Augustan Road, female learner).

The passive voice is employed in other complex constructions. These appear when having a good command of the target language. This is the case of example 26, where the correct version would be: *was thought to be*.

(26) This wall delimits the historic area of the city, which used to be thought to be an obstacle to the progress and evolution of the city, (Roman wall of Lugo, male learner)

Subject-verb agreement

Subject-verb disagreement has been listed as one of the most persistent grammatical errors among History students when implementing *Google My Maps* in pedagogical practices. Out of the 33 grammatical errors identified in the samples analysed, only 16 of these errors are found in males' writings. However, the frequency of these errors equals 17 in females' written outcomes.

Incorrect verb inflections are found in examples 27, 28 and 29. These instances seem to depict fossilised errors based on the omission of the 3rd person singular and 3rd person plural inflections. Hence, suggested corrections would involve *has, measures* and *were sent*.

(27) The complex have the biggest temples of the empire, like the enormous temple of Jupiter (Temple of Bacchus, male learner)

(28) The stone wall measure 4.6 meters high and 3 meters deep (Hadrian's wall, female learner).

- (29) The researchers found objects there that was sent to a museum.
(Saguntum's Roman Theatre, female learner).

Word order

Word order was the third most common grammatical category found in students' samples and gender-based distribution differences were minor. A total of 29 errors were listed, with females and males committing 15 and males 14 respectively.

As seen in example 30, word order is altered due to students' interference of their L1 syntactical structures. As a result, the placement of *on the ground floor* does not sound natural, neither in writing nor in speech.

- (30) The mansion used to have on the ground floor the entrance hall, the courtyard and a garden.

- (31) This aqueduct is one of the best preserved Roman aqueducts and a symbol of the city where is it (Aqueduct of Segovia).

In example 31, word order error also reflects the influence of Spanish. The use of relative pronouns is usually connected to interrogative structures where subject-verb inversion takes place. Apart from that, relative pronouns are also used to introduce subordinate clauses. Consequently, this wrong order error may respond to students' lack of comprehensive knowledge in the English language.

Punctuation

Punctuation errors could be interpreted based on subjectivity and stylistic preference without forgetting the conventions of the English written system. Out of the 42 participants, males committed 13 punctuation errors, with an average of 0.62 errors per participant. The highest distribution of punctuation errors was thus encountered in females' written outcomes with an average of 0.68.

Some of these errors concerned the usage of commas, periods and apostrophes. The suppression and overuse of commas, periods and semicolons is presented below. In Example 32 the comma following Segovia should be removed and a comma should be added before introducing the utterance *both nationally and internationally*.

- (32) The Roman aqueduct of Segovia, is one of the best preserved and well-known archaeological remains both nationally and internationally. It is also one of the symbols of the city [...] (The Aqueduct of Segovia, male learner).

- (33) and in genitive forms When we talk about the Ionic order; we are talking about the decorative style used on the capitals of the columns that decorate the

facades of the temple; although this is not the case, in addition to this order, there is also [...] (Portunus temple, female learner).

- (34) *Its* one of the best preserved monuments in the Roman province of Hispania (Roman Amphitheater in Tarragona, male learner)

As seen in example 33 above, periods were omitted and semicolons were unnecessary misplaced. Other relevant issues were related to the suppression of apostrophes when contracting verbs, as in example 34.

Singular/plural forms

When it comes to singular/plural markers, a reduced number of students failed to distinguish the correct forms. Even though there was a low number of cases, males' errors outnumbered the inaccuracies detected in females' writings. Example 35 reports that Spanish speakers find it difficult to use the plural form of *this*, not only because 'these' is an irregular plural but because they are not able to discriminate vowel length differences.

- (35) In *this* shows, between 500.000 and 1.000.000 citizens died (Coliseum, female learner).

- (36) The name given by the Romans is unknown and was used to defend *itself* against the Germanic tribe (Saalburg Castellum, male learner).

Example 36 above clearly illustrates the wrong use of the pronoun *itself*. Two options could have been employed to correct singular/plural disagreement, either *themselves* or *the population*.

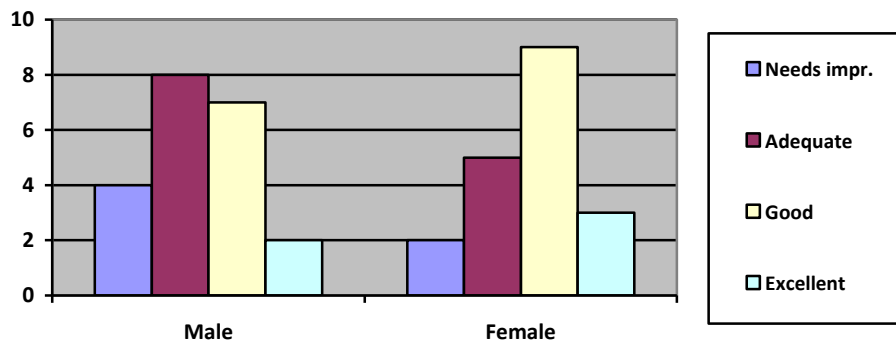
Unclear utterances

As with singular/plural form disagreement, the number of unclear utterances decreases considerably in the writing process for both males and females. This type of error was more frequent in females' samples, who committed 8 out of a total of 14 errors. From these results we can presume that very few students mastered the target language at a basic user level. Thus, clear examples that would need to be rephrased for clarification purposes can be read as follows:

- (37) The paintings that decorated the front of the stage when fashion marked doing in with marble. (Guadix Roman Theatre, female learner)
- (38) This construction is part of the three spectacle buildings that had a first-level Roman city capital of the one of the Empire (Roman pantheon, male learner).

Building on the assessment criteria for written productions, it can be assumed that female students had a better command of the lexico-grammatical elements available in the English language. According to Figure 4, males' linguistic skills were generally adequate due to the presence of spelling, wrong word choice, omission and verb tense errors. Some students' contributions needed more language revision than others, two of them showing a high level of accuracy.

Figure 4. Assessment criteria: Language

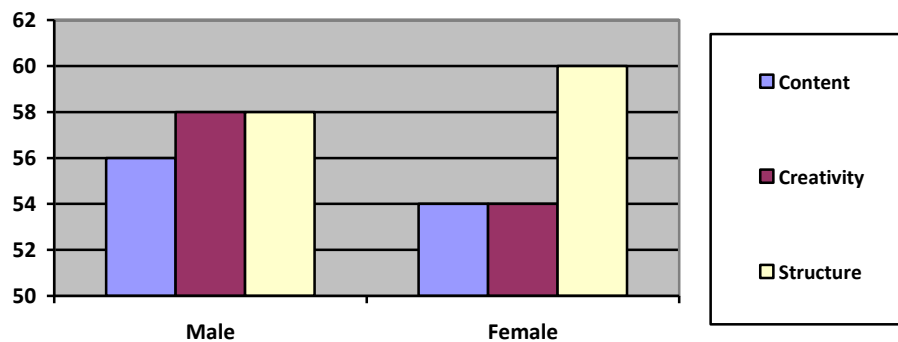


On the other hand, females scored higher in the language variable, which demonstrates they are better communicators than their male counterparts. These results seem to be consistent with past research suggesting that female learners are better at language learning due to cognitive and motivational factors (López Rua 110-112).

b. Content, creativity and structure

We were interested in finding not only what types of errors are more frequent in students' written outcomes, but in cognitive, creative and organisational variables. As seen in Figure 5, the content component in males' written performance scored 2.67/4 whilst it was 2.84/4 for females. Regarding structure, female students seem to discuss ideas in a more logical way.

Figure 5. Assessment criteria: Content, creativity and structure



In addition, maps' customisation by means of colours, icons and pictures together with the incorporation of curiosities and students' personal opinions remains almost the same for both genders (males= 2.76, females=2.84). Evidence of the creative outcomes obtained by means of the *Google My Maps* platform may be found in the following excerpts:

(39) I couldn't not include this site, since it's a proof of Roman occupation as close as Calpe, and the fact that you can freely swim in what was once the source of food of its population 2000 years ago just makes it totally worthy (Baños de la reina, female learner).

(40) My curiosity for these Roman archaeological remains is given by the large number of times I have visited the surrounding villages that can be found near this arch with my parents or my friends. Whenever I passed by, I wondered when and who should have built this monument (Roman arch in Cabanes, male learner).

(41) As a curiosity with this door is that the Romans built it to protect the sacred forest of Augustus, and not the city, but that is a mystery that is unknown today (Roman walls of Lugo, male learner)

(42) I have chosen this location because it is where I was born, and I have visited it many times (Amphitheatre in Tarragona, male learner).

As seen above, learners' personal views were welcome. Some of these contributions were related to individuals' experiences and curious facts about the archaeological sites that caught their attention. Therefore, it can be deduced that when assignment guidelines are precise, the integration of OERs within innovative educational practices is recommended.

5. CONCLUSION

Technology-enhanced CLIL practices are quite recent in learning environments, with positive outcomes in the acquisition of receptive and productive skills in the target language. However, scarce research can be found about the development of writing skills when supported by OERs. This is the reason why the purpose of this paper was to examine students' written performance using *Google My Maps* with a special focus on lexicogrammatical errors. To this end, this study departed from the following research questions (RQ): (1) What types of writing errors can be spotted in first year tertiary students in a History CLIL classroom in the production of *Google My Maps* texts?, (2) Is there any significant difference between male and female students' written performance in *Google My Maps* texts?, and (3) What benefits can the use of *Google My Maps* entail in a CLIL History classroom?

As noted, the tool known as *Google My Maps* has been used to collect original written outcomes produced by university students involved in a CLIL History module offered at a Spanish university. Focusing on the first RQ, the findings have revealed that the most typical errors produced in these interactive maps occur at a lexical level. The highest proportion of lexical errors was related to spelling, followed by wrong word choice and omission errors, with slight differences between males' and females' writings. On the contrary, a low number of errors were detected in students' written outcomes at grammar level, which were mainly related to subject-verb agreement and verb tense inaccuracies. Within this scenario, it is obvious that the use of computer technologies may have had a detrimental effect on first-year undergraduate students' written competence, particularly on the ones enrolled in the History and Heritage degree. This is not surprising since younger generations heavily rely on grammar and spell checkers embedded in word processors, email programs and widely popular platforms such as *Whatsapp*. Likewise, students' incorrect use of lexical items is strongly linked to their L1. Therefore, more training on these areas and more exposure to the target language should be considered in the curriculum design.

Turning to the second RQ, gender differences have been observed. Even though spelling errors are common in both male and female written productions, omission and wrong word errors prevail in male learners, whilst omission and lexical transfer errors have been observed in female learners' performance. As for grammar, verb tense errors have been the most recurrent in males' written outcomes in contrast to subject-verb agreement

errors, which were persistent in females' written outcomes. Even though CLIL learners seem to perform better in grammar, detecting and providing feedback on problematic issues would have a positive impact on students' writing process.

Regarding the third RQ, *Google My Maps* has proven to be an effective and valid tool for the gathering of a small corpus of students' written texts for analysis and further research. The findings obtained will shed some light on the linguistic areas that seem to be more challenging in the CLIL classroom. A thorough comprehension of the results can also contribute to refining teachers' expectations about the development of undergraduate students' written competence through OERs, and thus guide educators towards the implementation of successful pedagogical initiatives and teaching strategies in CLIL contexts.

As far as pedagogical implications are concerned, this research study has provided evidence about the positive impact of *Google My Maps* in CLIL contexts as it enables the generation of multimodal texts. Based on our findings, the writings gathered with *Google My Maps* seem to boost the acquisition of a set of learner autonomy, summarising and critical thinking skills, all of them of utmost importance in foreign language learning. Providing students with corrective feedback will also help them to raise awareness on their learning progress so that errors do not get fossilised. Therefore, empowering students to produce writings aided by multimodal OERs may lead to successful learning experiences as they get to express opinions and curiosities.

Further research concerned with technology-enhanced CLIL programmes is still needed since language learning opportunities are endless in EFL environments. Evidence-based practices with OERs would aid educators willing to disseminate subject-matter knowledge in the target language, especially when addressing difficult linguistic aspects in writing, reading, listening and speaking.

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